

PARTS LIST

HORIZONTAL MACHINING CENTER

KH-45/KH-4500

KIWA MACHINERY CO., LTD.

(21-11)

INDEX (KH-45/KH-4500)

21-11

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Spindle Head 1/2

DRAWING NO. AH450001A1

No.		Q'TY	CODE/TYPE	VER.	REMARKS
1	Spindle Head (casting)	1	P00003	D	FC300
	Spindle Head (machining)	1	P00003	L2	
	Spindle Head (machining) (axis extension)	1	P00B43	A0	
2	Centering Ring (Spindle Head Side) (casting)	1	P00043	A0	FC300
	Centering Ring (Spindle Head Side) (machining)	1	P00043	C	
3	Spindle Head Top Cover	1	P00177	C	SS400
4	Sensor Stay	1	P00038	D2	SS400
5	Sensor Dog	1	P00397	E0	SS400
6	Drawing Bar	1	P00023	D	SCM415
7	Clamp Plug	1	P00026	B	SCM415
8	Piston	1	P00027	A	S45C
9	Belleville Spring Stopper Collar	1	P00028	A	ALBC2
10	Belleville Spring Adjustment Collar	1	P00029	B	S45C
11	Joint Sleeve	1	P00030	A	S45C
12	Joint Rod	1	P00031	D	SCM435
13	Flange	1	P00032	D	SS400
14	Coolant Joint	1	P00033	A	S45C
15	Push Rod	1	P00034	C2	SNCM220
16	Dog Bar	1	P00036	B	S45C
17	Unclamp Cylinder	1	P00039	D1	S45C
18	Unclamp Cylinder Cover	1	P00040	F0	S45C
19	Unclamp Piston	1	P00041	D0	S45C
20	Cylinder Spacer	1	P00042	B	SS400
21	Centering Ring (Motor Side) (casting)	1	P00044	A	FC300
	Centering Ring (Motor Side) (machining)	1	P00044	F1	
22	Actuator	1	P00119	B	S45C
23	Socket Adjustment Collar	1	P00385	A	S50C
24	Push Ring	1	P01014	A	SCM415
25	Belleville Spring Stopper Nut	1	P01015	A	SCM435
26	Collet	1	P00C15	A0	
27	Collet Spring	1	ABAA114	A	SUS304-WPB
28	Stopper Plate	1	P00037	D0	SS400
29	Coolant Nozzle Base	1	P00961	A	SS400

Spindle Head 1/2

DRAWING NO. AH450001A1

No.		Q'TY	CODE/TYPE	VER.	REMARKS
29	Coolant Nozzle Base (axis extension)	1	P00B88	A0	SS400
	Coolant Nozzle Base (HSK)	1	P0AD002	A	S45C
30	Rotation Nozzle	6	SNA4		IKO
31	Spindle	1	K91KW277		KOYO
	Spindle (20,000 min ⁻¹) (HSK)	1	K91KW596		KOYO
32	Coupling (10,000 min ⁻¹)	1	M561324		KTR
33	Belleville Spring	1	7000-00729-R1		TOKAI BANE
34	Sheet for Belleville Spring	2	7000-00783-R0		TOKAI BANE
35	Seal	1	KWM-1918-140		SKF
36	O-Ring	1	P7		NOK
37	O-Ring	2	P9		NOK
38	O-Ring	1	P16		NOK
39	O-Ring	1	P18		NOK
40	O-Ring	1	P24		NOK
41	Rod Seal	2	KWM-IW0346-340		SKF
42	O-Ring	2	P65		NOK
43	O-Ring	1	P135		NOK
44	O-Ring	2	P145		NOK
45	O-Ring	1	CO 1829A(AS568-259)		NOK
46	O-Ring	1	S7		NOK
47	O-Ring	2	G155		NOK
	O-Ring (HSK)	2	G200		NOK
48	O-Ring	1	G150		NOK
	O-Ring (HSK)	1	G160		NOK
49	C-Snap Ring for Shaft	1	S-8		OCHIAI
50	Bush	1	80B-1220		OILES
51	Spring Pin	1	φ5x32L		
52	Taper Pin with Female Thread	4	φ6x35L		
53	Proximity Sensor	2	FL7M-3J6HD		azbil

Spindle Head 2/2**DRAWING NO. AH450002A2**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Spindle Motor (10000)	1	aiIT15/10000		FANUC
	Spindle Motor (12000,15000)	1	aiIT15/15000		
2	Distance Block	1	P00088	C3	AC4B
3	Rotary Joint Housing	1	P00087	C2	A5056
4	Rotary Joint	1	1124-300-345		DEUBLIN

Spindle Head 1/2 (HSK)**DRAWING NO. A0AD001A**

NO.	DESCRIPTION	Q'TY		VER.	REMARKS
1	O-Ring	1	G160		
2	O-Ring	1	P20		
3	Coolant Nozzle Base	1	P0AD00	2A	S45C
4	Socket Head Cap Screw	6	M8 x 20		
5	Spindle (20,000 min ⁻¹)	1	K91KW596		KOYO
6	O-Ring	1	G200		

Spindle Head 2/2 (HSK)

DRAWING NO. A0AD002B0

NO.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Spindle Head	1	P0AD00	B0	FC300
2	O-Ring	1	P20		
3	Spindle Rear End Support	1	P0AD003	A	S45C (STKM13A)
4	Cylinder Base	1	P0AD004	C0	S45C (STKM16A)
5	Unclamping Amount Adjustment Shaft	1	P0AD008	B	S45C
6	Spindle Unclamping Sensor Stay	1	P0AD019	A	SS400
7	Unclamping Piston	1	P0AD006	B1	S45C
8	O-Ring	1	P105		
9	O-Ring	1	P115		
10	Unclamping Cylinder	1	P0AD005	A	S45C
11	O-Ring	1	G120		
12	O-Ring	1	P100		
13	Unclamp Cylinder Cover	1	P0AD007	A	S45C
14	Unclamp Dog	1	P05036	C	S45C
15	Lock Nut	1	MRZ50x1.5P		NIKKI
16	Tool Presence Sensor Stand	1	P05181	C0	SS400
17	#50 Rotary Joint Mounting Base	1	P05033	A	S45C
18	Rotary Joint Housing (Small)	1	P0AD010	B0	S45C
19	Rotary Joint Housing (Large)	1	P0AD009	A	S45C
20	Rotary Joint	1	ESX20-8834Y		RIX
21	Socket Head Cap Screw	6	M8 x 70		
22	Socket Head Cap Screw	6	M10 x 35		
23	Socket Head Cap Screw	6	M5 x 25		
24	Socket Head Cap Screw	4	M5 x 10		
25	Socket Head Cap Screw	4	M5 x 16		
26	Socket Head Cap Screw	4	M4 x 30		
27	Socket Head Cap Screw	8	M10 x 60		
28	Proximity Sensor	1	EH-108(Sensor) ES-M1P(Amp)		KEYENCE
29	Proximity Switch	1	FL7M-2J6HD		azbil
30	Socket Head Cap Screw	4	M5 x 16		
31	Taper Pin with Female Thread	2	φ10 x 55		
32	O-Ring	1	G200		

Spindle Head 2/2 (HSK)**DRAWING NO. A0AD002B0**

NO.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
33	Socket Head Cap Screw	2	M5 x 25		
34	Socket Head Cap Screw	4	M6 x 30		
35	Cushion Stopper	1	R0C0353	D	Urethane
36	Socket Head Cap Screw	4	M6 x 30		
37	Cushion Stopper	1	R0C0353	D	Urethane
38	Spindle (20,000 min ⁻¹)	1	K91KW596		KOYO

X Axis 1/2

DRAWING NO. AH450003B1

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Bed (casting)	1	P00001	J0	FC300
	Bed (machining)	1	P00001	R0	
2	X Axis Linear Guide Spacer	4	P00923	B	SS400
3	X Axis Linear Guide Stopper	2	P00A55	A0	S45CD
4	X Axis Linear Guide	1	SRG45LC2SSC0E+1500LP - II	THK	
	X Axis Linear Guide (axis extension)	1	SRG45LC2SSC0E+1530LP - II		
5	Needle Roller Pin	30	φ4.5x19.8		
6	Socket Flat Head Screw	30	M6x15		

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Coupling Box (casting)	1	P00045	B	FC300
	Coupling Box (machining)	1	P02048	D3	
2	X Axis Bearing Housing (casting)	1	P00047	A	FC300
	X Axis Bearing Housing (1G)	1	P00414	B	
3	Bearing Collar	1	P00050	B	S45C
4	X Axis Bearing Stopper (for KH-45)	1	P00052	C	S45C
	#50 X Axis Bearing Stopper (for KH-4500)	1	P05039	A1	S45C
5	Collar	1	P00053	C0	S45C
6	X Axis Stopper Stay (1G)	1	P00472	A	SS400
7	Cushion Stopper	2	AAC0683	D0	Urethane
	Cushion Stopper (axis extension)	2	P00B41	A0	
8	Taper Pin with Female Thread	2	φ6x35		
9	AC Servo Motor	1	αiS22/4000		FANUC
10	Coupling	1	EAR18-35Cx35C-TK		TSUBAKI
11	Bearing 4 pcs/set	1	40TAB09FFBB/GL		NACHI
12	Bearing 3 pcs/set	1	35TAB07U/GM		NACHI
13	X Axis Ballscrew (for KH-45)	1	BA700720084-0		PMI
	X Axis Ballscrew (for KH-4500)	1	BA700720072-1		
	X Axis Ballscrew (axis extension)	1	BA700720105-0		
14	Lock Nut	2	MRZ35x1.5P		NIKKI
15	Bearing Nut	1	AN07		
16	Coupling Box Cover	1	P00957	B0	SS400
17	O-Ring	2	P38		
18	Lock Nut	1	MRZ40x1.5P		NIKKI
19	Collar (1G)	1	P00417	C0	S45C
20	Ballscrew RJ Housing (for KH-4500)	1	P05040	A	
21	Ballscrew RJ Base (for KH-4500)	1	P05041	B	
22	Ballscrew RJ Adjusting Spacer (for KH-4500)	1	P05042	B	
23	Rotary Joint (for KH-4500)	1	ES50-2000		RIX

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Column (casting)	1	P00002	P2	FC300
	Column (machining)	1	P00002	G2	
	Column (casting) (axis extension)	1	P00B42	A0	FC300
	Column (machining) (axis extension)	1	P00B42	A0	
2	X Axis Slide Cover Stay	4	P00178	C	SS400
3	Y Axis Linear Guide Spacer	4	P00925	B	SS400
4	Y Axis Linear Guide Stopper	2	P02049	A	S45CD
5	Y Axis Linear Guide	1set	SRG35R2SSC0E+1200LP-II		THK
	Y Axis Linear Guide (axis extension)	1set	SRG35R2SSC0E+1330LP-II		
6	Socket Flat Head Screw	30	M6x15		
7	Needle Roller Pin	30	φ4.5x19.8		

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Coupling Box (casting)	1	P00045	B	FC300
	Coupling Box (machining)	1	P02048	D3	
2	Y Axis Bearing Housing (casting)	1	P00047	A	FC300
	Y Axis Bearing Housing (machining)	1	P00416	B	
3	Bearing Collar	1	P00050	B	S45C
4	Y Axis Bearing Stopper	1	P00A51	B1	S45C
5	Collar	1	P00053	C0	S45C
6	Taper Pin with Female Thread	2	φ6x35		
7	AC Servo Motor	1	αiS22/4000 w/ Brake		FANUC
8	Coupling	1	EAR18-35Cx35C-TK		TSUBAKI
9	Bearing 4 pcs/set	1	40TAB09FFBB/GL		NACHI
10	Y Axis Ballscrew (for KH-45)	1	BA700720091-0		PMI
	Y Axis Ballscrew (for KH-4500)	1	BA700720090-0		
	Y Axis Ballscrew (axis extension)	1	BA700720106-0		
11	Bearing 3 pcs/set	1	35TAB07U/GM		NACHI
12	Lock Nut	1	MRZ35x1.5P		NIKKI
13	Oil Seal	1	SB406211		NOK
14	Cushion Stopper	2	R0C0353	D	Urethane
15	O-Ring	1	S120		NOK
16	O-Ring	1	G155		NOK
17	Y Axis Bearing Housing Cover	1	P00951	A	S45C
18	Socket Set Screw (flat tip)	1	M5x15		
19	Oil Seal	1	VR40A		NOK
20	Parallel Pin	1	MSTH10-15		MISUMI
21	Lock Nut	1	MRZ40x1.5P		NIKKI
22	Collar (1G)	1	P00417	B	S45C
23	Y Axis Ballscrew RJ Housing (for KH-4500)	1	P00A52	A0	S45C
24	Y Axis Ballscrew RJ Base (for KH-4500)	1	P00A53	A0	S45C
25	Ballscrew RJ Adjusting Spacer (for KH-4500)	1	P05042	B	SS400
26	Rotary Joint (for KH-4500)	1	ES50-2000		RIX

Z Axis

DRAWING NO. AH450007A2

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Coupling Box (casting)	1	P00045	B	FC300
	Coupling Box (machining)	1	P02048	D3	
2	Z Axis Bearing Housing (casting)	1	P00047	A	FC300
	Z Axis Bearing Housing (machining)	1	P00415	B	
3	Bearing Collar	1	P00050	B	S45C
4	Collar	1	P00053	C0	S45C
5	Coupling Box Cover	1	P00957	B0	SS400
6	Cushion Stopper	1	AAC0683	D0	Urethane
7	Z axis Cushion Stopper	1	P00700	C0	Urethane
8	Z axis Support Block (for KH-45)	1	ACC0212	F2	FC300
	Z axis Support Block (for KH-4500)	1	P00A54	A0	
9	X axis Stopper Stay	1	P00174	B	S50C
10	Bearing Stopper (for KH-45)	1	ABC0213	A3	S50C
	#50 Bearing Stopper (for KH-4500)	1	P05039	A1	S45C
11	Rotary Table (for KH-45)	1	RTH-425,AA		TSUDAKOMA
	Rotary Table (for KH-4500)	1	RTH-423,AA		TSUDAKOMA
12	Z Axis Linear Guide	1set	SRG45R2SSC0E+1430LP-II		THK
13	Z Axis Linear Guide Spacer	4	P00924	B	SS400
14	AC Servo Motor	1	aiS22/4000		FANUC
15	Bearing 4 pcs/set	1	40TAB09FFBB/GL		NACHI
16	Z Axis Ballscrew (for KH-45)	1	BA700720086-0		PMI
	Z Axis Ballscrew (for KH-4500)	1	BA700720071-1		
17	Bearing 3 pcs/set	1	35TAB07U/GM		NACHI
18	Coupling	1	EAR18-35Cx35C-TK		TSUBAKI
19	Lock Nut	1	MRZ35x1.5P		NIKKI
20	Bearing Nut	1	AN07		
21	Taper Pin	2	φ6x35		
22	Oil Seal	1	SB406211		NOK
23	Oil Seal	1	SC457210		NOK
24	O-Ring	2	P38		NOK
25	Z Axis Pretension Block Cover (KH-45)	1	P00A31	A0	SS400
26	Socket Flat Head Screw	26	M6x15		
27	Needle Roller Pin	26	φ4.5x19.8		

Z Axis**DRAWING NO. AH450007A2**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
28	Taper Pin	2	φ10x40		
29	Z Axis Linear Stopper	1	P00176	B	SS400
30	Rotary Table Side Cover (Right) (KH-45)	1	P00179	E	SS400
	Rotary Table Side Cover (Right) (KH-4500)	1	P00A91	A0	SS400
31	Rotary Table Side Cover (Left) (KH-45)	1	P00180	C	SS400
	Rotary Table Side Cover (Left) (KH-4500)	1	P00A92	A0	SS400
32	Bed Right Cable Rest	4	P00A32	A1	SS400
33	Lock Nut	1	MRZ40x1.5P		NIKKI
34	Collar (1G)	1	P00417	B	S45C
35	Ballscrew RJ Housing (for KH-4500)	1	P05040	A	
36	Ballscrew RJ Base (for KH-4500)	1	P05041	B	
37	Ballscrew RJ Adjusting Spacer (for KH-4500)	1	P05042	B	
38	Rotary Joint (for KH-4500)	1	ES50-2000		RIX
39	Z Axis Support Side Water Exclusion Roof	1	P00A07	A3	SS400

APC (Top View)

DRAWING NO. AH450008B0

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Rotation Stand (casting)	1	P00004	E	FC300
	Rotation Stand (machining)	1	P00004	N1	
2	Pallet Changing Arm (casting)	1	P00005	C	FC300
	Pallet Changing Arm (machining)	1	P00005	N1	
3	Pallet (casting)	2	P00008	E	FC300
	Pallet (machining)	2	P00008	M	
4	Lifting Block	4	P00140	B0	S45CD
5	Lifting Pin	4	P00A44	A1	SCM415
6	APC Lower Sensor Stay	1	P00143	D0	SS400
7	Index Block	2	P00403	B	S45CD
8	APC Lower Sensor Dog	2	P00407	A	SS400
9	Position Sensor Stay	1	P00564	A	SS400
10	Position Sensor Dog	1	P00565	A	SS400
11	Adjusting Screw	1	P00824	A	
12	APC Arm Fall Prevention Pin	1	P00A43	A0	S45C
13	Lifting Block Spacer	4	P00A45	A1	SS400
14	Hexagon Nut	1	M24		
15	Spring Washer	1	M24		
16	Needle Bearing Inner Ring w/additional work	2	P02400	A	
17	Rotation Stopper	1	ACD0253	A	S45C
18	Edge Locator	2	R0D0303	G	S50CN
19	Edge Locator	2	R0D0314	G	S50CN
20	Screw with Positioning Nose	1	MSSG10-35		MISUMI
21	Hinge Pin	1	CCGH8-80.3		MISUMI
22	Hydraulic Cylinder	1	70H-8R2FA63BB238-ABAJ4-X		TAIYO
23	Proximity Sensor	2	FL7M-3J6HD		azbil

APC (Side View)

DRAWING NO. AH450009B0

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Waiting Pallet Base (casting)	1	P00006	A	FC300
	Waiting Pallet Base (machining)	1	P00006	E	
2	Waiting Pallet Bracket (casting)	1	P00007	C	FC300
	Waiting Pallet Bracket (machining)	1	P00007	C	
3	APC Rotation Shaft	1	P00110	F	S55C
4	APC Rack	1	P00111	E2	SCM435
5	APC Pinion	1	P00112	B1	SCM435
6	Arm Plate	1	P00113	D	S45C
7	Rotation Supporter	1	P00114	D	S45C
8	Up/down Cylinder	1	P00A41	A1	S55C
9	Up/down Cylinder Cover	1	P00117	C	S45C
10	Up/down Piston	1	P00400	A	S45C
11	APC Upper Sensor Stay	1	P00A46	A1	SS400
12	APC Positioning Pin	1	P00A42	A1	S45C
13	Location Pin	4	P00148	B	S45C
14	Handle	1	P00401	C	S45C
15	Index Pin	1	P00402	E	SCM435
16	Spring Stopper Plate	1	P00404	A	SS400
17	Pallet Stabilizer Pin	4	P00672	A	S45C
18	Needle Bearing Inner Ring w/additional work	2	P02400	A	
19	Positioning Key	3	Q0E1534	A	S45C
20	APC Indexing Rubber	1	P02231	B0	NBR
21	Bearing	1	6018ZZ		NSK
22	Bearing	1	6916ZZ		NSK
23	OILES #500SP Bush	2	SPB-557050		OILES
24	OILES #500SP Bush	2	SPB-506050		OILES
25	OILES #500SP Bush	1	SPB-202820		OILES
26	OILES Dry Met ST Bush	1	70B-2530		OILES
27	Index Pin Bush	1	JBAM20-16		MISUMI
28	Screw with Positioning Nose	1	MSSG10-40		MISUMI
29	Spring	1	SWL10-15		MISUMI
30	O-Ring	1	P120		NOK
31	O-Ring	1	S10		NOK

APC (Side View)

DRAWING NO. AH450009B0

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
32	O-Ring	1	S85		NOK
33	O-Ring	1	AS568-164		NOK
34	Rotary Seal	1	KWM-1881-550		ECONOMOS
35	Rotary Seal	1	KWM-1881-800		ECONOMOS
36	Compression Spring	1	11-1358		SAWANE SPRING
37	C-Snap Ring for Shaft	1	S-80		
38	C-Snap Ring for Shaft	1	S-90		
39	Parallel Pin with Female Thread	4	φ10x30		
40	Steel Ball	1	φ6.5		
41	Steel Ball	1	φ3/8		
42	Socket Set Screw with Cup Point	1	M8x8		
43	Socket Set Screw with Cup Point	2	M10x45		
44	Socket Set Screw with Cup Point	1	M12x25		
45	Socket Set Screw with Cup Point	1	M12x30		
46	Lever Ball	1	KRM-CS404		KYOWA
47	Proximity Sensor	1	FL7M-3J6HD		azbil

Pallet Clamping Unit**DRAWING NO. AH450010A0**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Taper Clamp	4	P00015	E	SUJ2
2	Piston	4	P00016	B	S55C
3	Lock Bar	4	P00017	D	SUJ2
4	Taper Block	8	P00018	C	SUJ2
5	Cap	4	P00019	B	S45C
6	Spacer	8	P00020	B	S45C
7	Belleville Springs	36	MC-J-60		TOKAI BANE
8	Steel Ball	16	φ9/32(φ7.144)		
9	Rod Seal S01-P	4	KWM1908-660		ECONOMOS
10	O-Ring	4	AS568-149		NOK
11	O-Ring	8	P15		NOK
12	O-Ring	4	P5		NOK
13	C-Snap Ring for Holes	4	R-24		

Double Arm**DRAWING NO. B-AM41400000-R1**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Arm Body	1	B-AM41400013		
2	Lock Pin	2	B-AM41400052		
3	Lock Spring	2	B-AM41400060		
4	Lock Cap	2	B-AM41400041		
5	Dust Seal	2	D10 x d6 x t3		
6	Clamp Bar Pin	2	B-AM41400131		
7	E-Ring	2	E7		
8	DU Bush	2	D20 x d18 x t10		
9	Dust Seal	2	D24 x d18 x t3		
10	Gripper (BT)	2	B-AM41400021		
	Gripper (CAT)	2	B-AM41400100		
	Gripper (HSK)	2	B-AM41400160		
11	Stopper Key (BT)	2	B-AM41400080		
	Stopper Key (CAT)	2	B-AM41400352		
	Stopper Key (HSK)	2	B-AM41400170		
12	Clamp Bar	2	B-AM41400035		
13	Clamp Bar Spring	2	B-AM41400190		
14	Clamp Bar Shaft	2	B-AM41400121		
15	Clamp Bar Spacer	2	B-AM41400141		
16	Positioning Pin	4	φ8 x 25L		
17	Socket Head Cap Screw	8	M8 x 16		
18	Socket Head Cap Screw	6	M5 x 40		
19	Flat Head Screw	2	M5 x 10		

ATC Unit

DRAWING NO. AH450012B2

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	ATC Unit Base (casting)	1	P00009	C	FC300
	ATC Unit Base (machining)	1	P00009	D1	
2	ATC Unit (for GIZIN)	1	GAJF90XB11		GIZIN
	ATC Unit (for OTSUKA)	1	C39969△2		OTSUKA
3	ATC Unit Motor (for GIZIN)	1	β8-3000is		FANUC
	ATC Unit Motor (for OTSUKA)	1	OD L42658-01		FUJI ELECTRIC
4	ATC Unit Spacer (for GIZIN)	1	P00C37	A2	SS400D
12	ATC Unit Column Positioning Plate	1	P00101	B	SS400
13	ATC Unit Column Cover	1	P00100	C	SS400
14	Hexagon Head Screw	1	M8x20		
15	Socket Set Screw (flat tip)	1	M8x20		
16	Socket Button Head Screw	2	M8x15		
17	Slide Base Positioning Bolt	1	P00418	B	SCM435
18	Hexagon Nut	1	KNTR8		MISUMI
19	Parallel Pin (for GIZIN)	2	φ10x20 h7		
20	Double Arm (BT40)	1	B-KWARM400		COYO
	Double Arm (CAT40)	1	B-KWARM401		
	Double Arm (HSK40)	1	B-KWARM402		
21	Dust Seal	2	DSPB 65 80.1 6.1		NOK
22	Parallel Pin	2	Φ8x20		
23	OILES Bush	1	CBB-658040		OILES
24	Case	1	P00C40	A2	S45C
25	sleeve	1	P00C41	A0	SS400
26	Power Lock	1	PL040X065AE		TSUBAKI
27	Mesh cover for sleeve	1	P00C43	A2	SS400 black

ATC Shutter

DRAWING NO. AH450016A1

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	High-Power Cylinder	1	RHCB32-700		SMC
2	Proximity Sensor	2	FL7M-4J6HD		azbil
4	Floating Joint	1	P02350	A2	S45C
5	ATC Shutter Stay	1	P00790	D	SS400
6	Lock Nut	1	SOR-32		SMC
7	Socket Set Screw with Cup Point	1	M6x8		
8	Shutter Cylinder Stay	1	P00B17	A0	SS400
9	ATC Shutter Base (ST OTSUKA)	1	P00255	M1	SS400
	ATC Shutter Base (axis extension OTSUKA)	1	P00B73	A0	SS400
	ATC Shutter Base (ST GIZIN)	1	P00C32	A0	SS400
	ATC Shutter Base (axis extension GIZIN)	1	P00D14	A0	SS400
10	ATC Shutter (ATC Unit OTSUKA)	1	P00300	H1	SS400
	ATC Shutter (ATC Unit GIZIN)	1	P00C35	A0	SS400
11	Shutter Cylinder Base (ATC Unit OTSUKA)	1	P00307	G0	SS400
	Shutter Cylinder Base (ATC Unit GIZIN)	1	P00C36	A0	SS400
12	Shutter Cylinder Stay (φ32)	1	P00341	E0	SS400
13	Shutter Bottom Proximity Sensor Base	1	P00927	A1	SS400
14	Shutter Upper Proximity Sensor Base	1	P00928	A1	SS400

Tool Pot Slide (Magazine Side)

DRAWING NO. AH450013-1A0

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Tool Pot Slide Base (casting)	1	P00831	A	FC300
	Tool Pot Slide Base (machining)	1	P00831	A	
2	Base Plate	1	P00061	E	SS400
3	Clamp Block	1	P00425	B	S50C
4	Slide Cylinder Stay A	1	P00066	C	SS400
5	Slide Cylinder Stay B	1	P00067	A	SS400
6	Positioning Shaft	1	P00068	B	S50C
7	Clamp Plate	1	P00069	A	S45C
8	Clamp Support Block	1	P00070	A	S45C
9	Base Plate Key	2	P00424	C	S45C
10	Positioning Key	1	Q0E1534	A	S45C
11	Collar	1	P00832	A	S50C
12	Hydraulic Cylinder	1	100Z-1R-1SD32B141-AJ2-X/N		TAIYO
13	Linear Guide	1	SBI20SLL-1-K1-240-N		SBC
14	Coil Spring	2	4x20.7x35.3x4x6		TOKAI BANE
15	OILES #500SP Bush	2	SPB-121830		OILES
16	Shaft	2	SFJ12-115-WFC7-A4-E5		MISUMI
17	Stop Pin	1	STMH18		MISUMI
18	Socket Set Screw with Cup Point	4	M6x10		

Tool Pot Slide (ATC Unit Side)**DRAWING NO. AH450013-2A0**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Positioning Base Plate	1	P00088	C3	SS400
2	Pot Slide Guide Bar	2	P02019	D1	SS400
3	Positioning Block	1	P00085	C	S45C
4	Positioning Plate	2	P00071	C	S45C
5	Pot Slide Guide	2	P02026	G0	SS400
6	Parallel Pin	2	φ10x20 h7		
7	Spring Pin	2	φ6x22		

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	ATC 40 Frame (casting)	1	P0001	E	FC300
	ATC 40 Frame (machining)	1	P00010	J3	
2	Idle Pulley (casting)	1	P00014	A	FC300
	Idle Pulley (machining)	1	P00014	A	
3	Magazine Drive Sprocket	1	P00059	A	S45C
4	Chain Guide Bar (Right) (casting)	1	P00073	A	FC300
	Chain Guide Bar (Right) (machining)	1	P00073	B	
5	Chain Pot Guide L367	2	P00075	B	UHMW-PE
6	Chain Pot Guide Bar L880	1	P00076	B	SS400
7	Sprocket Joint Plate	1	P00078	A	S45C
8	Tension Block	1	P00828	A	S45C
9	Idle Pulley Collar	1set	P00086	A	STKM16
10	Deceleration Unit Spacer	1	P00421	A	SS400
11	Chain Pot Corner Guide	2	P00826	A	SS400
12	Chain Support Shaft	1	AAE6122	C	SS400
13	Worm Deceleration Unit (MAB80L60NT)	1	NA3K-W139122		MAKISHINKO
14	Servo Motor	1	βiS12/3000		FANUC
15	Tool Pot	40	CP40J2202-1		COYO
16	Bearing	2	6912ZZ		NSK
17	C-Snap Ring for Shaft	1	S-60		
18	Bolt	2	P00829	A	
19	ATC Joint Bracket	1	P00825	A	SS400
20	Chain Guide L250C	1	ABE0563	A	MC Nylon
21	Chain Support Stay	1	P00914	A	SS400
22	Frame Reinforcement Stay	1	P00104	C	SS400
23	Hexagon Head Screw (threaded all the way)	1	M12x150		
24	Hydraulic Block Terminal	1	BTLSN2-22		MISUMI

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	ATC 40 Frame (casting)	1	P00010	E	FC300
	ATC 40 Frame (machining)	1	P00010	J1	
2	ATC 60 Frame (casting)	1	P00011	D	FC300
	ATC 60 Frame (machining)	1	P00011	E	
3	Idle Pulley (casting)	1	P00014	A	FC300
	Idle Pulley (machining)	1	P00014	A	
4	Magazine Drive Sprocket	1	P00059	A	S45C
5	Chain Guide Bar (Right) (casting)	1	P00073	A	FC300
	Chain Guide Bar (Right) (machining)	1	P00073	B	
6	Chain Pot Guide L367	2	P00075	B	UHMW-PE
7	Chain Pot Guide Bar L880	1	P00076	B	SS400
8	Chain Pot Guide Bar L720	2	P00077	B	SS400
9	Sprocket Joint Plate	1	P00078	A	S45C
10	Tension Block	1	P00828	A	S45C
11	Idle Pulley Collar	1set	P00086	A	STKM16
12	Column Positioning Key	2	Q0E1534	A	S45C
13	Deceleration Unit Spacer	1	P00421	A	SS400
14	Chain Pot Corner Guide	2	P00826	A	SS400
15	Chain Support Shaft	1	AAE6122	C	SS400
16	Worm Deceleration Unit (MAB80L60NT)	1	NA3K-W139122		MAKISHINKO
17	Servo Motor	1	βiS12/3000		FANUC
18	Tool Pot	60	CP40J2202-1		COYO
19	Bearing	2	6912ZZ		NSK
20	C-Snap Ring for Shaft	1	S-60		
21	Bolt	2	P00829	A	
22	ATC Joint Bracket	1	P00825	A	SS400
23	Chain Guide L250C	2	ABE0563	A	MC Nylon
24	Chain Support Stay	2	P00914	A	SS400
25	Frame Reinforcement Stay	1	P00104	C	SS400
26	Hexagon Head Screw (threaded all the way)	1	M12x150		
27	Hydraulic Block Terminal	1	BTLSN2-22		MISUMI

Pot Index Mechanism (Top View)

DRAWING NO. AH450017A2

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Chain Guide B (casting)	1	P00098	B	FC300
	Chain Guide B (machining)	1	P00089	B	
2	Pot Base Shaft	1	P00092	B	S55C
3	Link	1	P00093	B	S45C
4	Linear Block	1	P00094	A	S50C
5	Index Cylinder Stay	1	P00095	B	SS400
6	Slide Shaft Bracket	1	P00096	A	S45C
7	Pot Stopper Ring	1	P00097	A	S45C
8	Chain Guide A (casting)	1	P00098	B	FC300
	Chain Guide A (machining)	1	P00098	B	
9	Pot Base Collar	1	P00103	B	SS400D
10	Key (BT/CAT)	1	AAE5374	D	S50C
11	Pot Base Positioning Bolt	1	P00480	A	SCM435
12	Hydraulic Cylinder	1	100Z-1R-1SD-20B110-AJ2		TAIYO
13	OILES Dry Met ST Bush	4	70B-1220		OILES
14	OILES #500SP Thrust Washer	1	SPW-4007		OILES
15	Cam Follower	1	KRV19X/3AS		NTN
16	Linear Shaft	2	SFAG12-210-F10-P10-M5-FC7-E2		MISUMI
17	Socket Set Screw with Cup Point	1	M6x6		
18	Socket Set Screw with Cup Point	2	M6x20		

Pot Index Mechanism (Side View)

DRAWING NO. AH450018B0

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Index Base (casting)	1	P00012	B	FC300
	Index Base (machining)	1	P00012	F0	
2	Pot Base (casting)	1	P00013	B	FC300
	Pot Base (machining)	1	P00013	B1	
3	ATC Unit Column Positioning Plate	1	P00101	B	SS400
4	Tool Stocker Pot (BT, CAT)	1	KI-040802-02-1		KUSHIDA
	Tool Stocker Pot (HSK)	1	CP40H2071		COYO
5	Chain Guide D	1	P00409	B	MC Nylon
6	Chain Guide C	1	P00408	B	SS400D
7	Index Base Adjuster	1	P00410	A	SS400D
8	Index Positioning Bolt	1	P00411	A1	SCM435
9	Tool Sensor Stay L80	3	P00853	B	SS400
10	Chain Guide Spacer t3.2	1	P00884	A	SS400
11	Stop Pin	2	STMH18		MISUMI
12	Spring Pin	2	φ8x50		
13	Socket Set Screw (flat tip)	1	M12x40		
14	Socket Button Head Screw	2	M8x15		
15	Hexagon Head Screw	1	M8x20		
16	Socket Set Screw (flat tip)	1	M8x20		

ATC Single Arm

DRAWING NO. AH450019A2

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Single Arm Base (casting)	1	P00120	B	FC300
	Single Arm Base (machining)	1	P00120	C	
2	Single Arm Base plate	1	P00638	C	S50CN
3	Single Arm Gripper (Lower) (BT)	1	P00644	B	SCM415
	Single Arm Gripper (Lower) (CAT)	1	P00639	B	
	Single Arm Gripper (Lower) (HSK)	1	P0AD028	B0	
4	Single Arm Gripper (Upper) (BT)	1	P00645	B	SCM415
	Single Arm Gripper (Upper) (CAT)	1	P00640	B	
	Single Arm Gripper (Upper) (HSK)	1	P0AD029	B0	
5	Single Arm Key	2	P00132	B	SK4
6	Gripper Shaft	2	AAE5474	C	ABB2
7	In/out Cylinder Fixing Plate	1	P00134	B	SS400
8	Connection Plate	1	P00135	B	SS400D
9	In/out Slide Shaft	2	P00125	A	S45CD
10	Chain Guide (Single Arm Side)	1	P00090	D	FC300
11	Chain Guide Spacer L35C	2	P00154	A	S45C
12	Dual Cylinder Stay	1	P00670	B	SS400
13	Lock Cam Slide Bar	2	P00642	A	S45C
14	Single Arm	1	P00669	A	S50C
15	Slide Shaft Bracket	4	AAE5624	C	S45C
16	Single Arm Slider	2	AAE5574	B	S45C
17	Slide Shaft	2	AAE5613	B	S45CD
18	Tool Sensor Stay L154	1	P00854	A	SS400
19	Gripper Lock Pin	4	AAE5504	B	S45C
20	Gripper Lock Cam	2	AAE5494	B	ABB2
21	Lock Cam Spring Cap	2	AAE5644	A	S45C
22	Gripper Lock Pin Nut	4	AAE5514	A	S45C
23	Spring Stopper	2	AAE5604	A	S45C
24	Lock Pin Bar	2	AAE5714	A	S45C
25	Eccentric Pin φ20x25L	1	ABE0654	A	S45C
26	OILES #500SP Bush	4	SPB-303850		OILES
27	OILES #500SP Bush	4	SPB-253335		OILES
28	OILES Dry Met LF Washer	2	LFW-1215		OILES

ATC Single Arm

DRAWING NO. AH450019A2

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
29	OILES Dry Met M Bush w/additional work	8	AAE5724	A	
30	Dual Cylinder (M10)	1	100Z-1R-1SD20B190-AJ3-X		TAIYO
31	Hydraulic Cylinder	1	100Z-1R-1SD20B110-AJ2		TAIYO
32	Stop Pin	1	STMH18		MISUMI
33	Stripper Bolt	2	MSB16-30		MISUMI
34	Lock Nut	4	LVN20		MISUMI
35	Leveling Bolt	4	LVB20-40		MISUMI
36	Compression Spring	2	WH10-70		MISUMI
37	Compression Spring	2	WH6-55		MISUMI
38	Socket Set Screw (flat tip)	1	M10x35		
39	Socket Set Screw with Cup Point	2	M10x20		
40	Socket Set Screw (flat tip)	4	M6x30		
41	Socket Set Screw (flat tip)	2	M5x50		
42	Parallel Pin	4	φ10x20		
43	Socket Head Cap Screw	8	M6x30		
44	Socket Head Cap Screw	4	M6x20		
45	Socket Flat Head Screw	8	M3x8		
46	Socket Set Screw with Cup Point	16	M5x8		

Magazine Reduction Unit (ATC120)**DRAWING NO. AH450020A2**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Base Plate	1	P00107	C	S45CD
2	Reduction Unit RV-160E-145	1	55E020J00		NABTESCO
3	Sprocket Fixing Ring	1	P00109	B	S45CD
4	Socket Set Screw with Cup Point	2	M6x10		
5	O-Ring	1	AS568-265		NOK
6	O-Ring	1	G220		NOK
7	Oil Seal	1	SC19022015 (AC4975E4)		NOK
8	Motor Base	1	P00108	C	S55C
9	Oil Seal	1	SC50689 (AC2847E0)		NOK
10	Magazine Drive Sprocket	1	P00105	B	S45CD
11	Servo Motor	1	β12/3000is		FANUC
12	Magazine Motor Cover	1	P00557	A1	SS400

Idle Pulley Unit**DRAWING NO. AH450021A**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Idle Pulley (casting)	1	AAE6112	B	FC300
	Idle Pulley (machining)	1	AAE6102	C	
2	Chain Support Shaft	1	AAE612	2C	SS400
3	Bearing	2	6912ZZ		NSK
4	C-Snap Ring for Shaft	1	S-60		
5	Tension Block	1	P00082	A	S45CD
6	Hexagon Head Screw (threaded all the way)	1	M12x150		
7	Chain Support Shaft	1	ABE052		SS400

ATC120 Frame**DRAWING NO. AH450022A2**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	ATC Frame Face (canning drawing)	1	P00168	J0	SS400
	ATC Frame Face (machining)	1	P00168	P1	
2	ATC Frame Backside (canning drawing)	1	P00169	K	SS400
3	ATC Frame Connection Steel A	1	P00170	D	SS400
4	ATC Frame Connection Steel B	1	P00171	E	SS400
5	ATC Frame Connection Steel C	1	P00172	B	SS400
6	ATC Frame Connection Steel D	1	P00173	D	SS400
7	ATC Frame Connection Steel E	1	P00562	D	SS400
8	ATC Frame Connection Spacer	10	P00058	B	STKM16
9	Socket Head Cap Screw	13	M12x105		
10	Socket Head Cap Screw	16	M12x115		
11	Socket Head Cap Screw	2	M16x125		
12	Socket Head Cap Screw	8	M16x130		
13	Hexagon Head Screw	2	M12x100		

ATC120 Chain Guide and Tool Pot

DRAWING NO. AH450023B1

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Chain Guide Spacer L35C	10	P00154	A	S45C
2	Chain Guide Spacer L54C	24	P00155	A	S45C
3	Chain Guide Spacer L70C	8	P00156	A	S45C
4	Chain Guide Bar L480	1	P00158	B	SS400D
5	Chain Guide L480	1	P00159	A	MC Nylon
6	Chain Guide Bar L730	1	P00160	B	SS400D
7	Chain Guide L730	1	P00161	A	MC Nylon
8	Chain Guide Bar 1	8	P00804	A	SS400D
9	Chain Guide 1	8	P00802	B	MC Nylon
10	Chain Guide Bar 3	15	P00808	A	SS400D
11	Chain Guide L250C	15	ABE0563	A	MC Nylon
12	Tool Pot	120	CP40J2203		COYO

Coolant Tank

DRAWING NO. AH450024A

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Coolant Tank A	1	P00888	F0	SS400
2	Coolant Tank B	1	P00889	K1	SS400
3	Coolant Tank Cover A	1	P00890	B0	SS400
4	Coolant Tank Cover B	1	P00465	G	SS400
5	Coolant Tank Cover C	1	P00891	B	SS400
6	Coolant Tank Cover D	1	P00468	B	SS400
7	Coolant Tank Cover E	1	P00932	C	SS400
8	Pump Cleaning Cover	1	P00796	A	SS400
9	Coolant Tank Filter	2	P00892	A	SS400
10	Dummy Filter	1	P00893	A	SS400
11	Bucket	1	P00663	B	SS400
12	Gasket for Coolant Tank	1	P00895	A	V6500
13	Caster with Adjustable Foot	10	No,103AF-N		TOCHIGIYA
14	Oil Gauge	1	KL-100A		KYOWA
15	Coolant Pump	3	VKA246AQ		TERAL
16	Trochoid Pump	1	TOP-2MY-210HWMPVBE-2.0-15		NIPPON OIL PUMP
17	Suction Filter	1	KNF-08		KAMUI
18	Socket Head Cap Screw	8	M22x100		
19	Hexagon Nut	8	M22		
20	Spring Washer	16	M22		
21	Flat Washer	16	M22		

Pop-up Type MARPOSS

DRAWING NO. AH450025B0

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Stay (for KH-45)	1	P00A72	B0	S45CD
	Stay (for KH-4500)	1	P00B47	B0	
2	Base Plate	1	P00A73	A1	S50C
3	Cylinder Stay	1	P00390	C	S45C
4	Top Plate	1	P00A76	A0	S50C
5	Main Shaft	1	P00A77	A1	S45CD
6	Linear Guide	1	2SRS9MUUC1+185LM		THK
7	Main Cover (for KH-45)	1	P00A78	B0	SS400
	Main Cover (for KH-4500)	1	P00B49	B0	
8	Main Side Cover (for KH-45)	1	P00A79	B0	SS400
	Main Side Cover (for KH-4500)	1	P00C46	A0	
9	Top Cover	1	P00940	E0	SS400
10	Up/down Stay	1	P02333	B	SS400
11	Probe	1	3419825010		MARPOSS
12	Stylus	1	3191910887		MARPOSS
13	Dust Seal	1	DKH304269(AR1664G5)		NOK
14	Air Cylinder	1	CDM2BZ25-100AZ-A93Z		SMC
15	Tubing Joint	2	KQ2L-06-01S		SMC
16	Spring Hinge	1	TH-61B-1		TOCHIGIYA
17	Socket Head Cap Screw	4	M3x5		
18	Socket Head Cap Screw	9	M3x8		
19	Socket Head Cap Screw	4	M3x8		
20	Socket Head Cap Screw	8	M3x25		
21	Socket Head Cap Screw	4	M6x15		
22	Socket Head Cap Screw	2	M6x20		
23	Socket Head Cap Screw	4	M6x25		
24	Socket Button Head Screw	5	M5x6		
25	Socket Button Head Screw	2	M5x10		
26	Drive Shaft	1	P00A74	A1	
27	Drive Shaft Stay	1	P00A75	A2	
28	Bottom Cover	1	P00A80	A2	
29	Parallel Pin	2	φ6x20		

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	6APC (casting)	1	P00481	E0	FC300
	6APC (machining)	1	P00481	H	
2	Up/down Sensor Stay	1	P00619	D0	SS400
3	Pallet Positioning Pin	1	P00507	E2	S50C
4	Roller Bearing Stopper (Lower)	1	P00504	A	S45C
5	Positioning Bush Housing	4	P00727	F	SCM435
6	Positioning Key Shaft Side	1	P00512	C	S45C
7	Positioning Key Deceleration Unit Side	1	P00511	D	S45C
8	Joint Plate	1	P00500	A	S45C
9	Deceleration Unit Fixing Plate	1	P00490	B	S45C
10	Gear Box (casting)	1	P00485	A	FC300
	Gear Box (machining)	1	P00485	B	
11	Gear Box Cover	1	P00488	C	S45C
12	Deceleration Unit Side Timing Pulley	1	P00486	A	S45C
13	Bearing Collar	1	P00493	A	STKM
14	Gear Box Bearing Stopper	1	P00491	A	S45CD
15	Rotation Motor Base Plate	1	P00489	C	SS400
16	Timing Pulley Motor Side	1	P00487	A	S45C
17	Pulley Plate	1	P00492	A	SS400D
18	Positioning Plate Deceleration Unit Side	1	P00501	E0	S45C
19	Positioning Plate Deceleration Shaft Side	1	P00502	C	SCM415
20	Location Pin	16	P00148	B	S45C
21	Pallet Stabilizer Pin	16	P00672	A	S45C
22	Pallet Base Plate	4	P00496	E1	S50C
23	Pallet Rotation Base (casting)	1	P00482	D	FC300
	Pallet Rotation Base (machining)	1	P00482	H3	
24	Roller Bearing Stopper (Upper)	1	P00503	A	S45C
25	Pallet 1 Rotation Signal Dog	4	P00620	A	S45CD
26	1 Rotation Signal Sensor Stay	2	P00C90	A0	SS400
27	Rotation Shaft Support	1	P00495	C2	S50C
28	Cylinder Base (casting)	1	P00484	B1	FC300
	Cylinder Base (machining)	1	P00484	F4	
29	Up/down Piston	1	P00497	A1	S50C

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
30	APC Rotation Shaft Cover	1	P00499	B	SCM415
31	Piston Fixing Plate	1	P00498	C1	S50C
32	APC Rotation Shaft	1	P00494	E2	S50C
33	Rotation Shaft Positioning Plate	1	P00506	C2	S45C
34	Up/down Sensor Dog Cover	1	P00618	E1	SS400
36	Lock Nut	1	MR160		NIKKI
37	Bearing	1	6008ZZ		NSK
38	Bearing	1	6009ZZ		NSK
39	Bearing	2	6030ZZ		NSK
40	Crossed Roller Bearing	1	CRB30040T1		IKO
41	Cyclone Deceleration Unit RV160E-171	1	55E044J00		NABTESCO
42	Servo Motor	1	β12/3000is		FANUC
43	Timing Belt	1	550-5GT-25		UNITTA
44	OILES #2000 Bush	1	CWP-28150		OILES
45	Dust Seal	1	LBH-210		NOK
46	Oil Seal	1	SC19022015(AC4975E4)		NOK
47	O-Ring	1	AS568-265		NOK
48	O-Ring	1	G220		NOK
49	O-Ring	1	P125		NOK
50	O-Ring	1	P115		NOK
51	O-Ring	1	P90		NOK
52	O-Ring	2	P14		NOK
53	Knock Pin	8	MSTP16-70		MISUMI
54	Parallel Key	1	KED12-25		MISUMI
55	Socket Head Cap Screw	16	M20x60		
56	Socket Head Cap Screw	16	M20x65		
57	Socket Set Screw with Cup Point	1	M5x15		
58	Socket Set Screw with Cup Point	2	M10x15		
59	Socket Set Screw (additional machining)	1	M10x30		
60	Proximity Sensor	1	FL7M-2J6HD		azbil
61	Proximity Sensor	2	FL7M-3J6HD		azbil

Spiral Conveyor**DRAWING NO. NJ00001A**

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Shaft	1	P00C18	A1	S45C
2	Flange A	1	P00C19	A1	SS400
3	Seal Flange	1	P00C21	A1	SS400
4	Packing A	1	220x165x3T		NBR
5	Flange B	1	P00C20	A2	SS400
6	Oil Seal	1	SC45x62x9		NOK
7	Oil Seal	1	SB45x60x7		NOK
8	Ball Bearing	1	6008ZZ		
9	O-Ring	1	S110		NOK
10	Conveyor Washer	1	P00C22	A0	SS400
11	Plug	1	RC1		STD
12	Socket Head Cap Screw	1	M8x20		SCM3
13	Packing B	1	220x224x3T		NBR
14	Snap Ring	1	S-68		STD
15	Spring Washer	1	M8		STD
16	Geared Motor	1	GM-SF-0.2KW 1/60		
17	Socket Head Cap Screw	1	M10x12		SCM3
18	Spiral Coil for Operator Side	1	18xD100xP125-R		SCM3
	Spiral Coil for ATC Magazine Side	1	18xD100xP125-L		SCM3
19	Socket Head Cap Screw	4	M10x20		SCM3

Front Door

DRAWING NO. AH450051A0

No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Front Door Left	1	P00250	G3	SS400
2	Front Door Right	1	P00249	G3	SS400
3	Front Door Top Left	1	P00807	C0	SS400
4	Front Door Top Right	1	P00806	C0	SS400
5	Front Door Window	2	P00302	A	Polycarbonate
6	Front Door Handle Bracket Left	1	P00976	A1	SUS304
7	Front Door Handle Bracket Right	1	P00996	A0	SUS304
8	Door Handle	2	DTW120143-00-0A		SHIBUTANI
9	Electromagnetic Door Lock	1	HS1L-DT44KMSR-R		iDEC
10	Rubber Foot	8	TM-TK-16		TOCHIGIYA
11	Roller	8	KWM-68		SHIBUTANI

Operator Door

DRAWING NO. AH450052A0

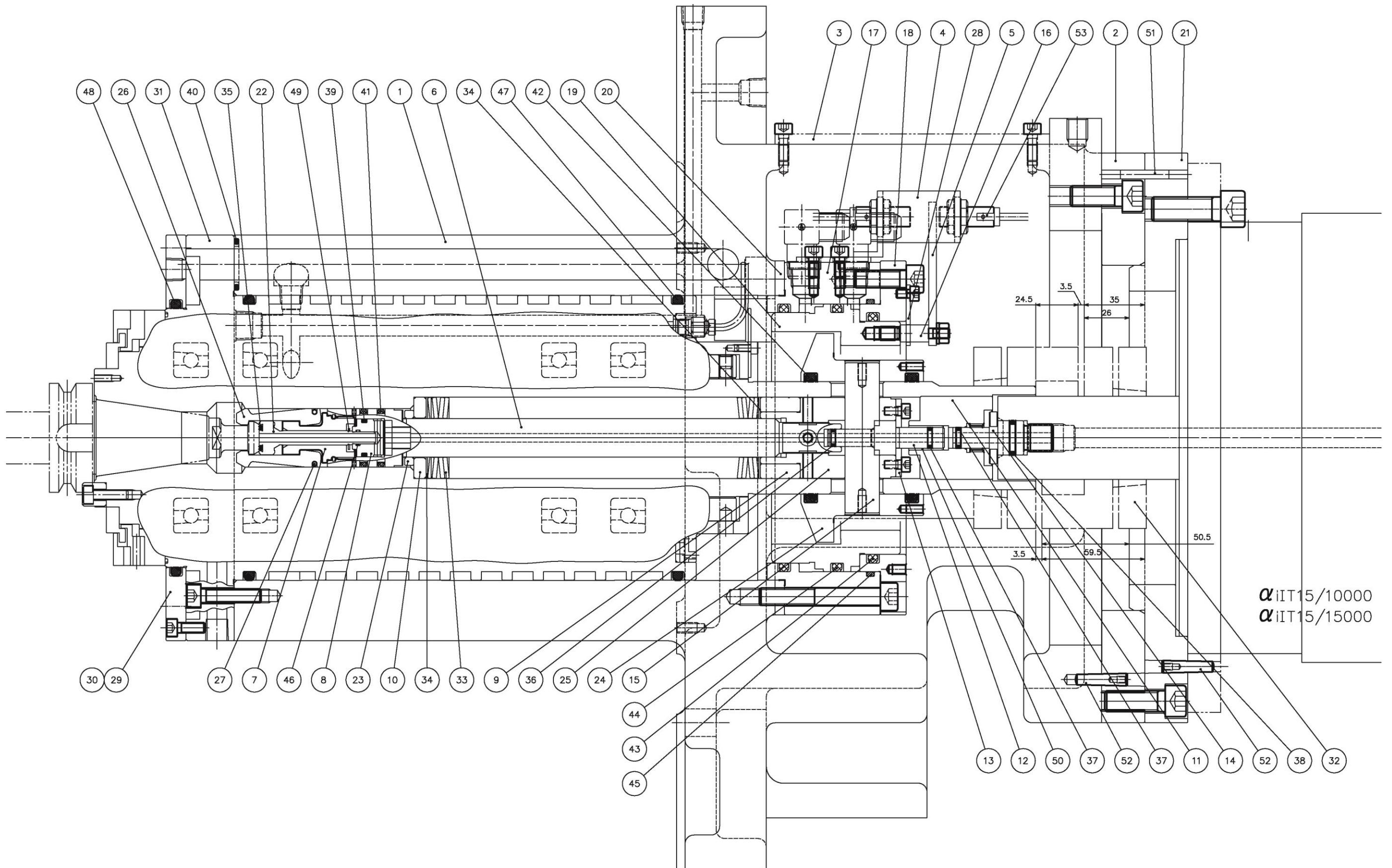
No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Operator Door	1	P00B84	A1	SS400
2	Operator Door Top	1	P00B85	A1	SS400
3	Operator Door Top Window	1	P00935	A	Polycarbonate
4	Operator Door Handle Bracket	1	P00983	A2	SUS304
5	Door Handle	1	DTW120143-00-0A		SHIBUTANI
6	Electromagnetic Door Lock	1	HS1L-DT44KMSR-R		iDEC
7	Rubber Foot	2	TM-TK-16		TOCHIGIYA
8	Roller	4	KWM-68		SHIBUTANI
9	Impact-Resistant Window	1	LMT-A1 8x730x590		LAMINTON

X/Y/Z Axis Cover**DRAWING NO. AH450053A0**

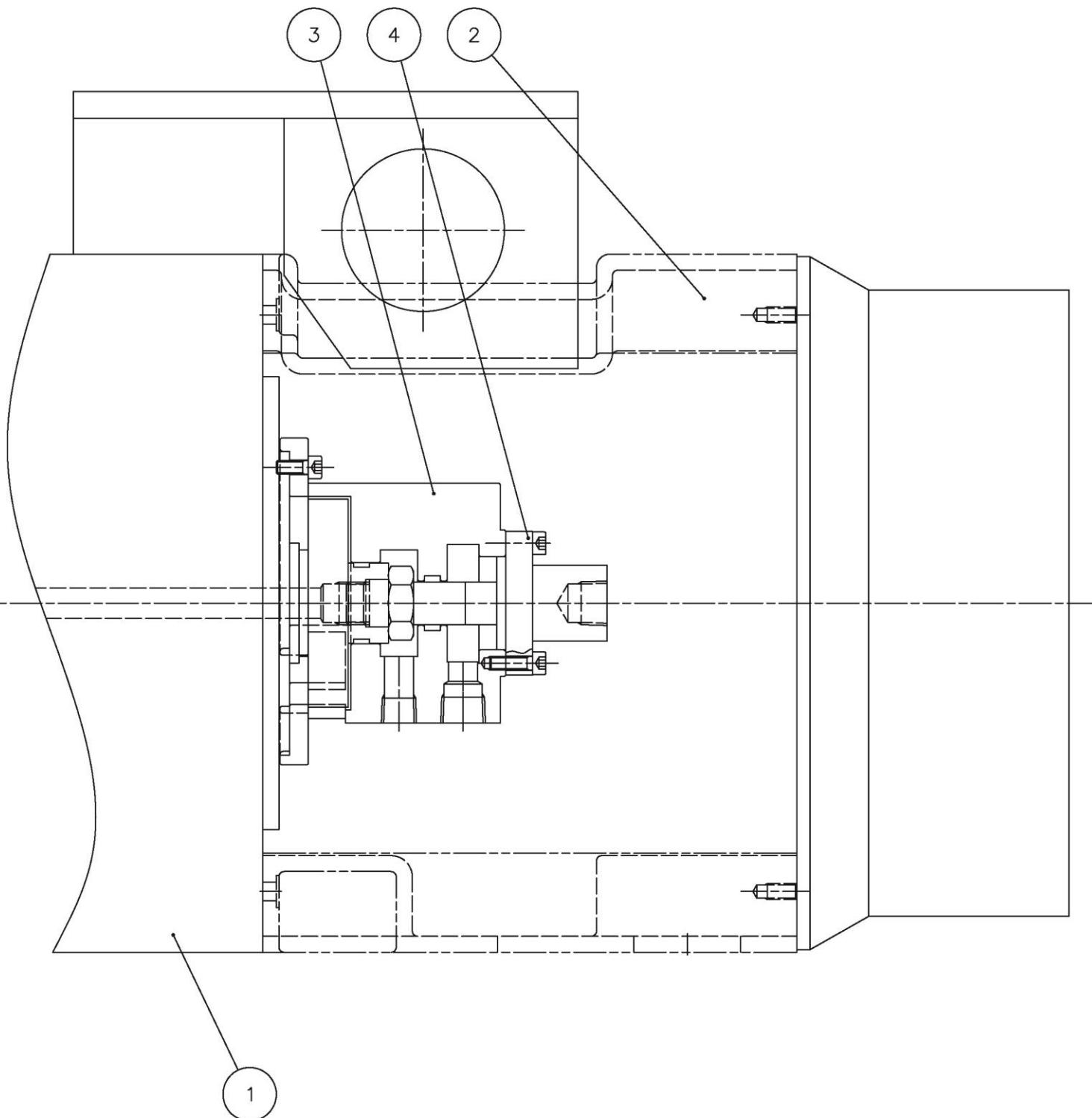
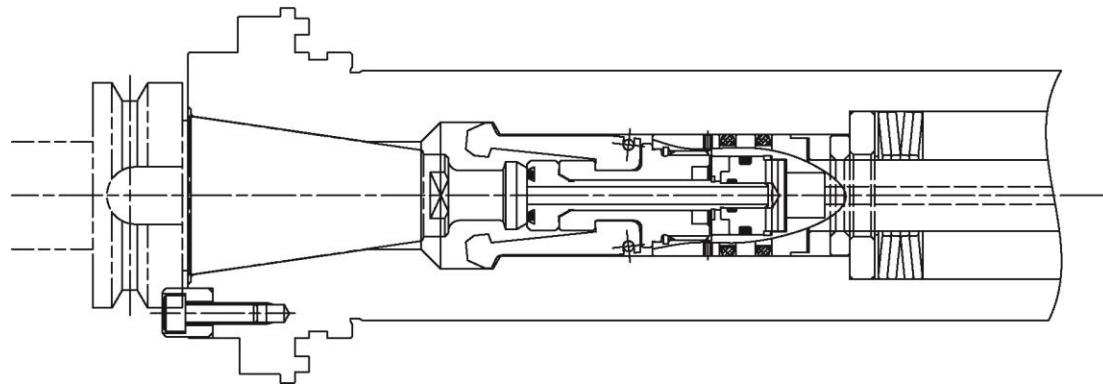
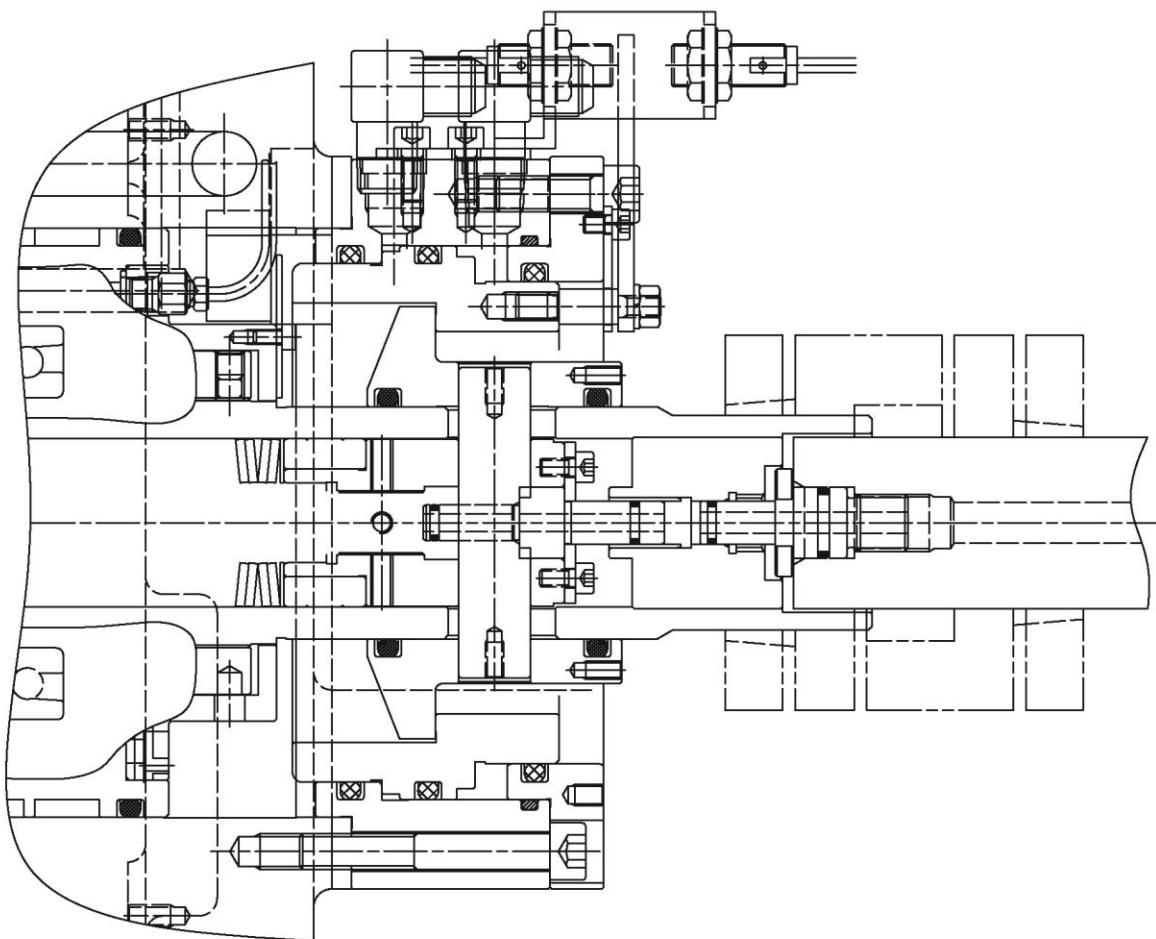
No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	Z Axis Slide Cover (moving side)	1	P00A83	A4	SS400
2	X Axis Telescopic Cover	1	3101-10		TOKYO SEIMITSU
3	Y Axis Telescopic Cover	1	3103-40		TOKYO SEIMITSU
4	Z Axis Telescopic Cover	1	3145-20		TOKYO SEIMITSU

ATC Magazine Cover (60Tools)**DRAWING NO. AH450055A0**

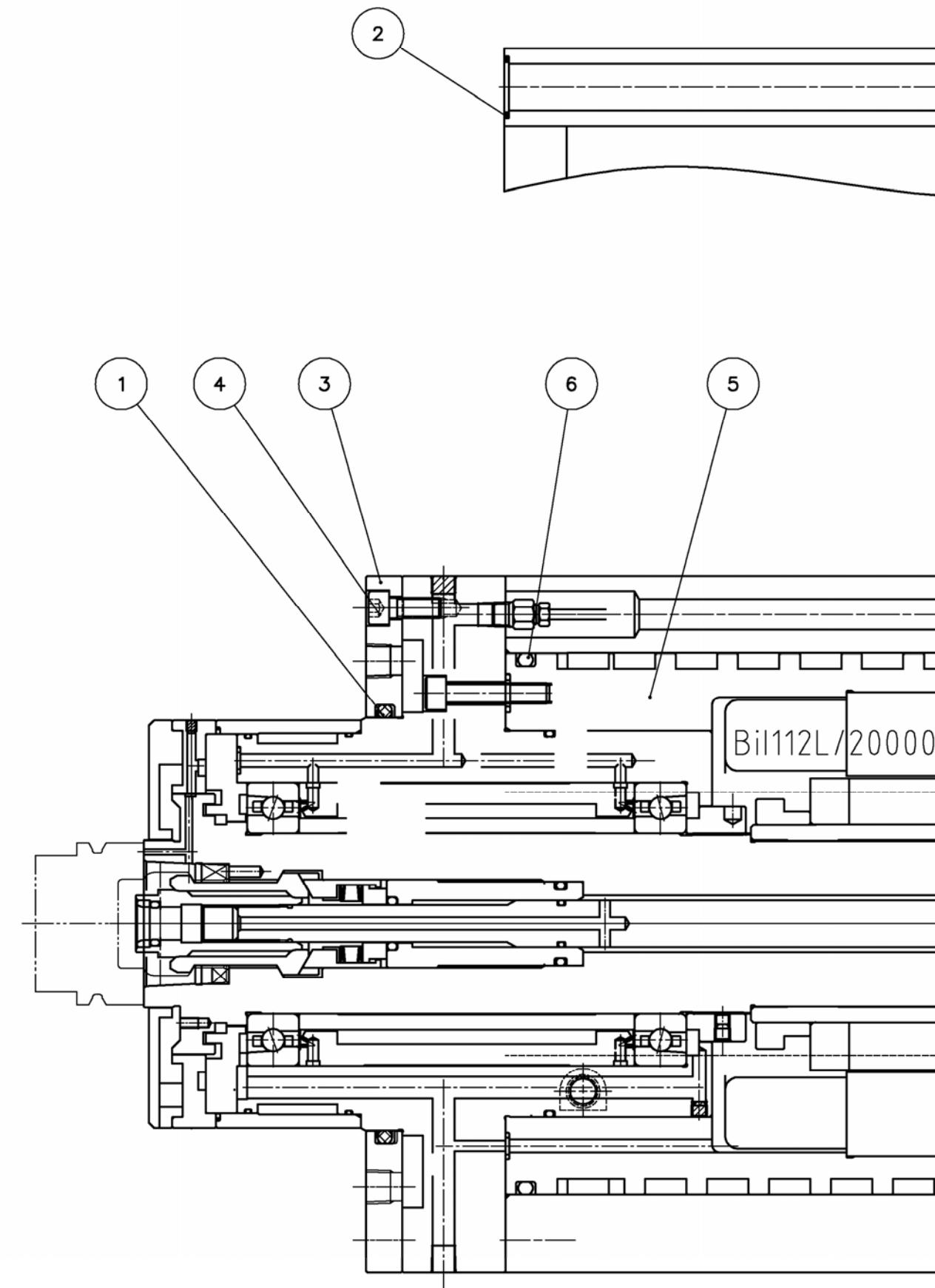
No.	DESCRIPTION	Q'TY	CODE/TYPE	VER.	REMARKS
1	ATC Door	1	P00193	D1	SS400
2	ATC Safety Cover	1	P00201	E4	SS400
3	ATC Door Window	1	P00205	A	PET
4	Ball Catch	1	C-90-1		TAKIGEN
5	Electromagnetic Door Lock	1	HS1L-DT44KMSR-R		iDEC
6	Actuator	1	HS9Z-A2S		iDEC
7	Machinery Handle	1	NMH70011		NIKKI



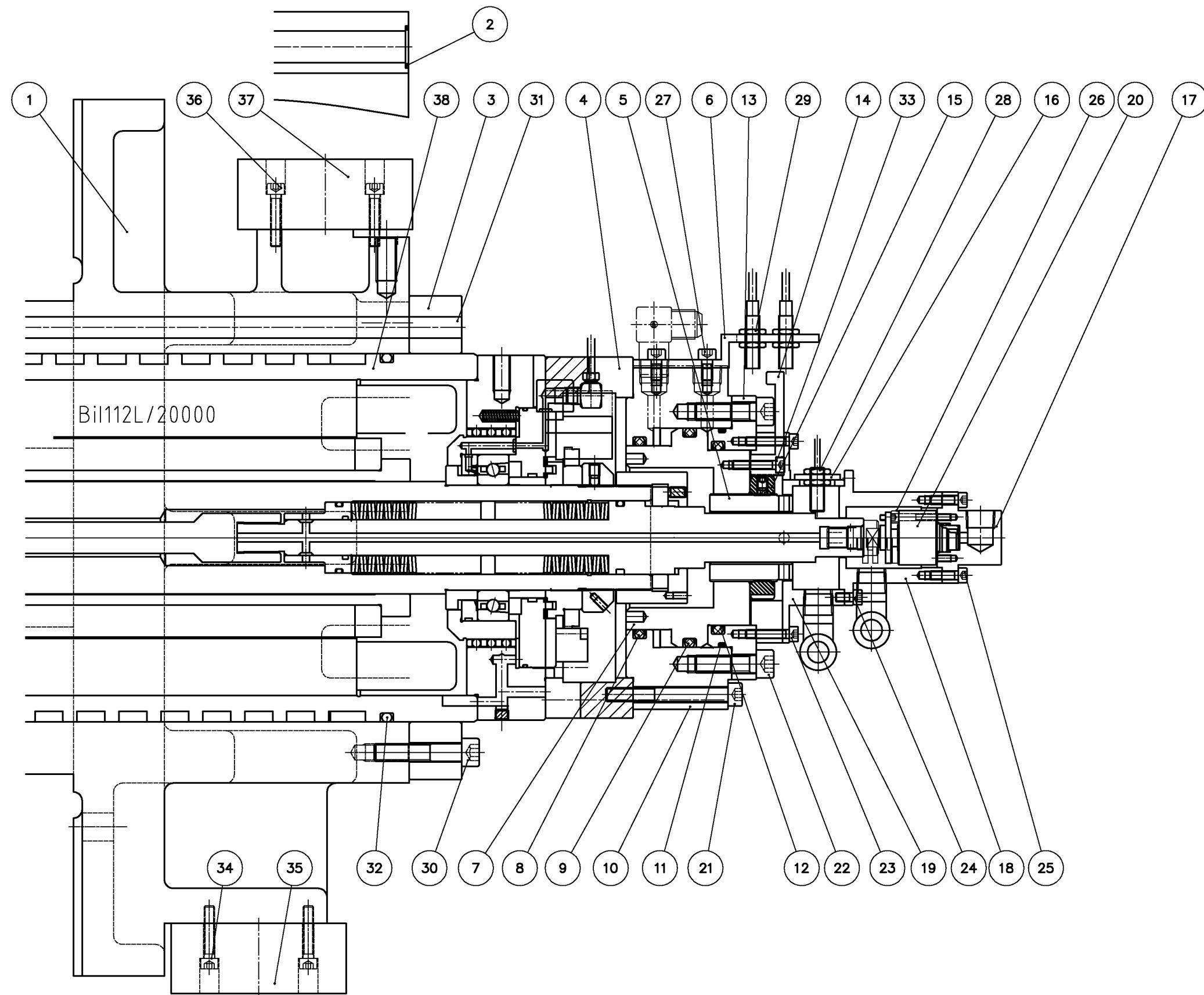
AH450001A1 Spindle Head 1-2



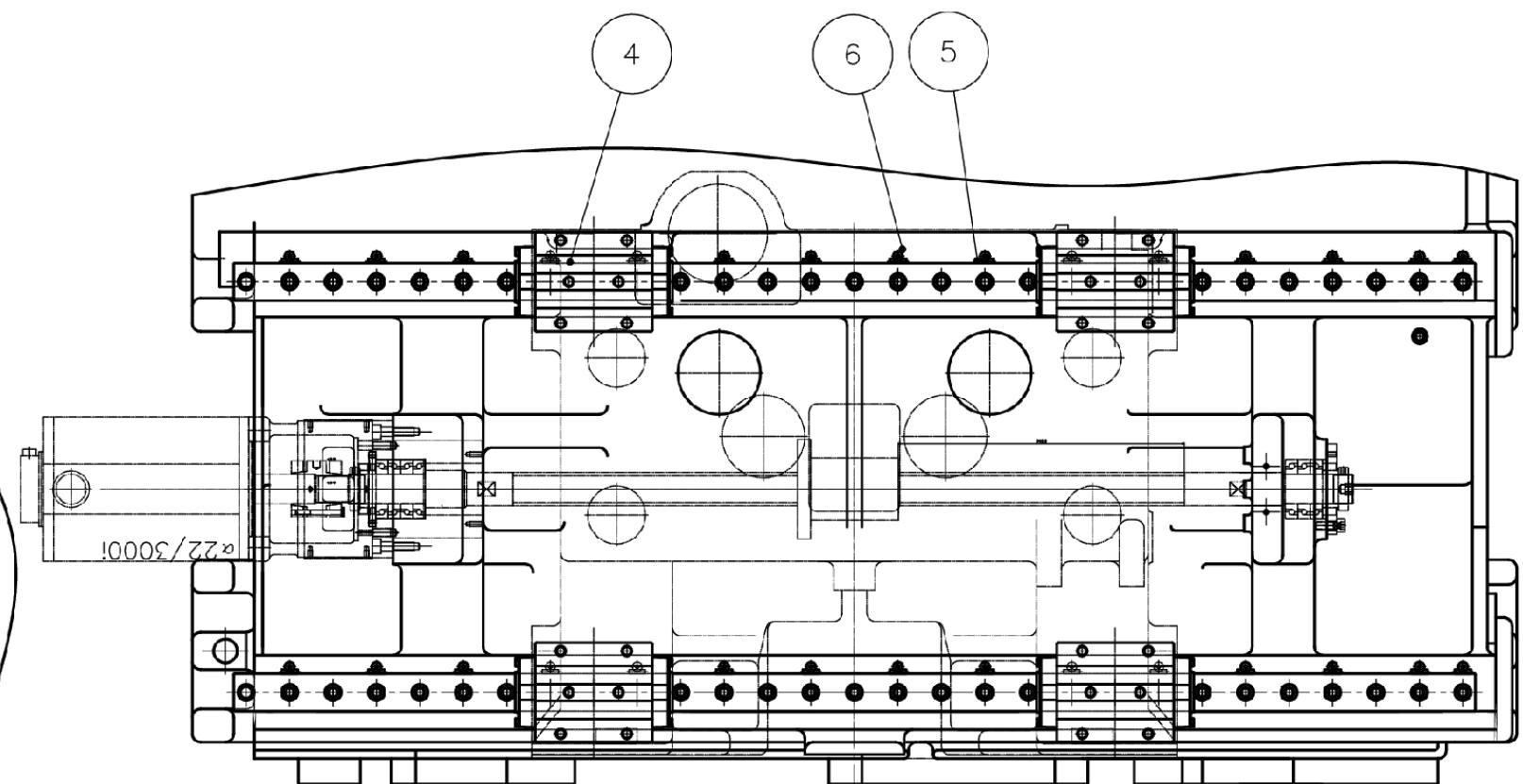
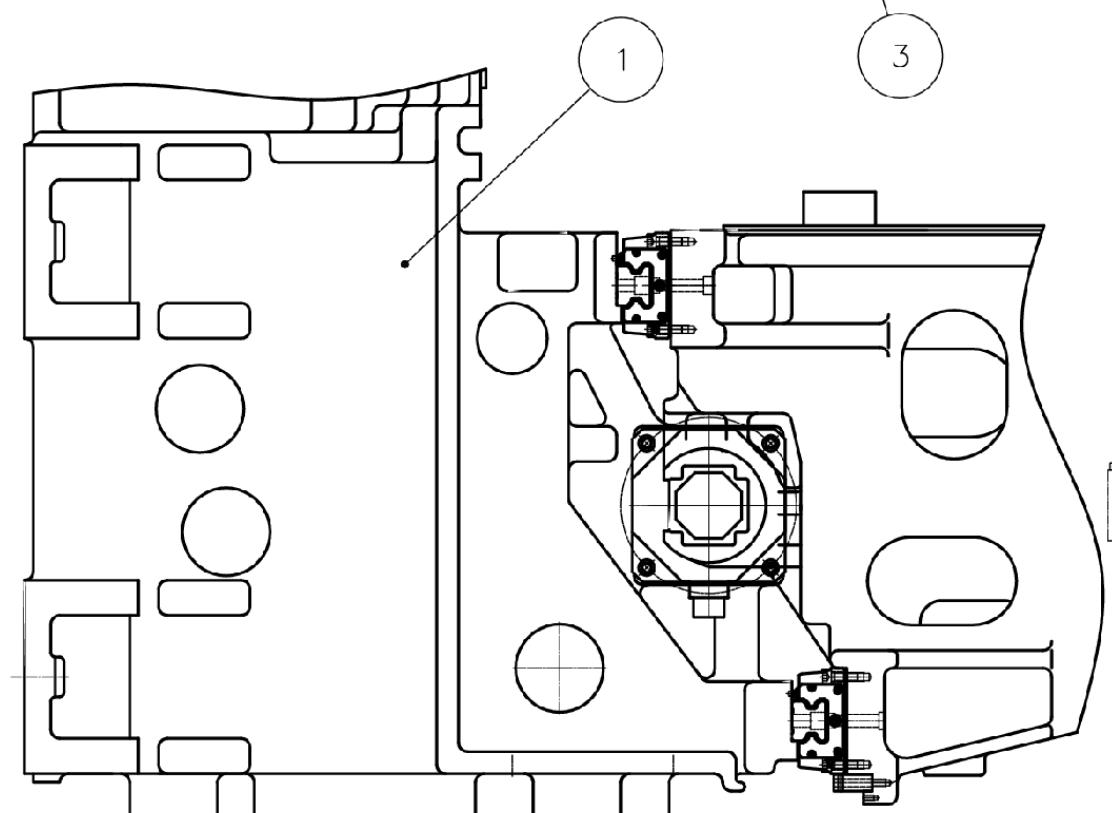
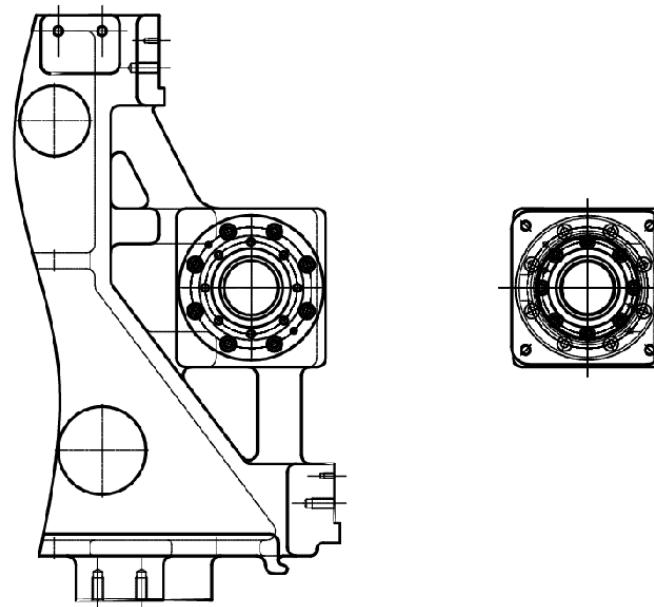
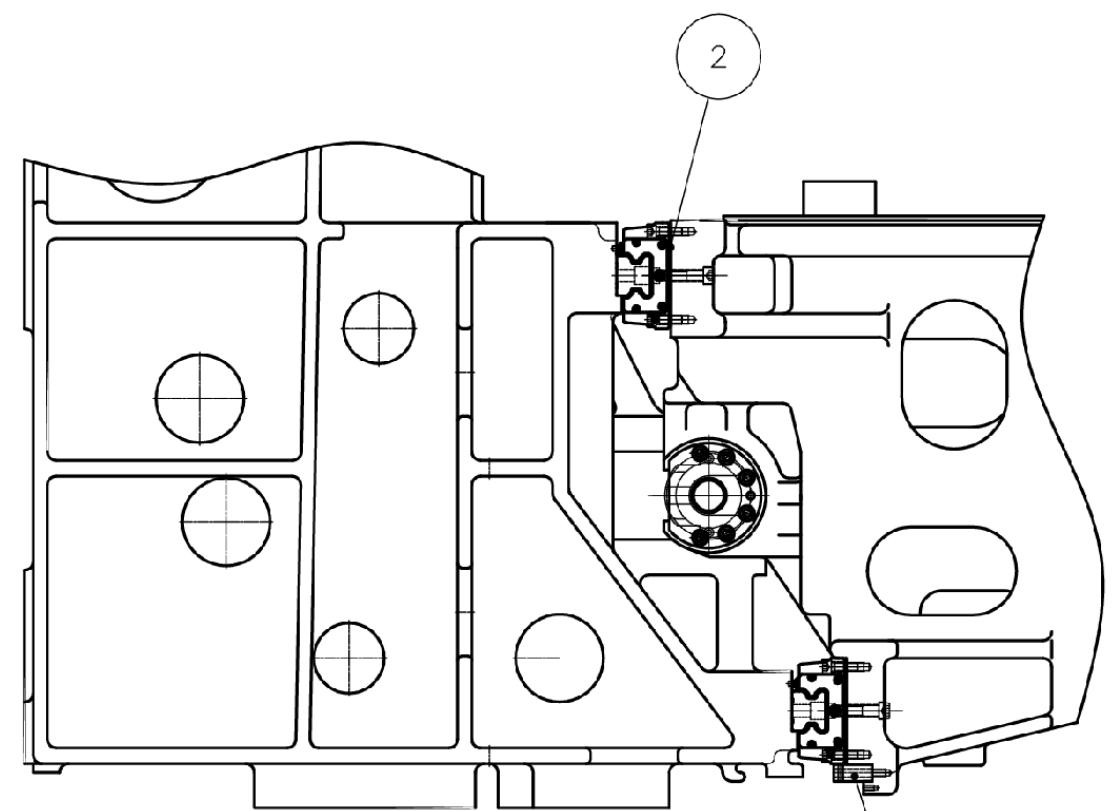
AH45002A2 Spindle Head 2-2



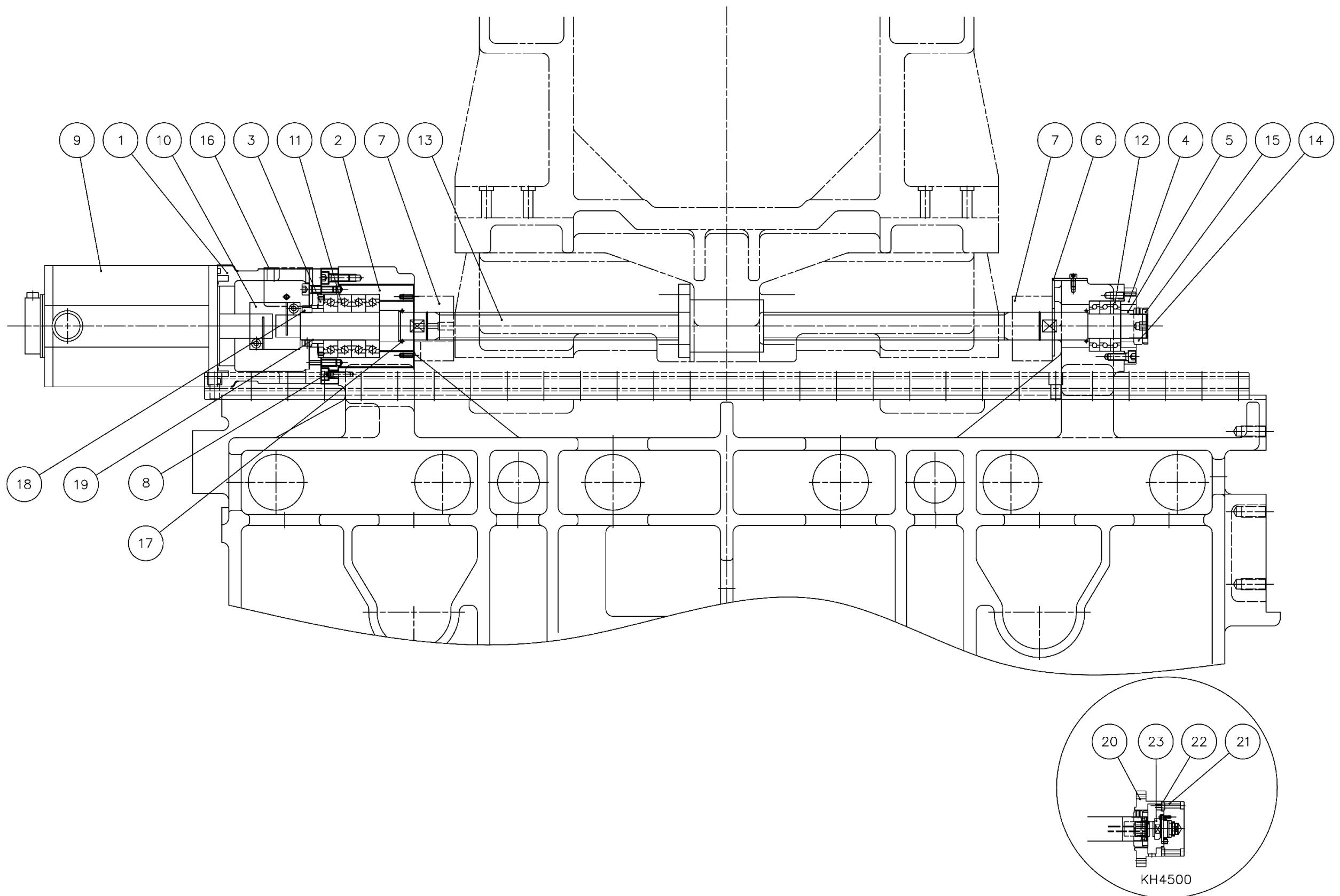
A0AD001A Spindle Head 1-2
(HSK)



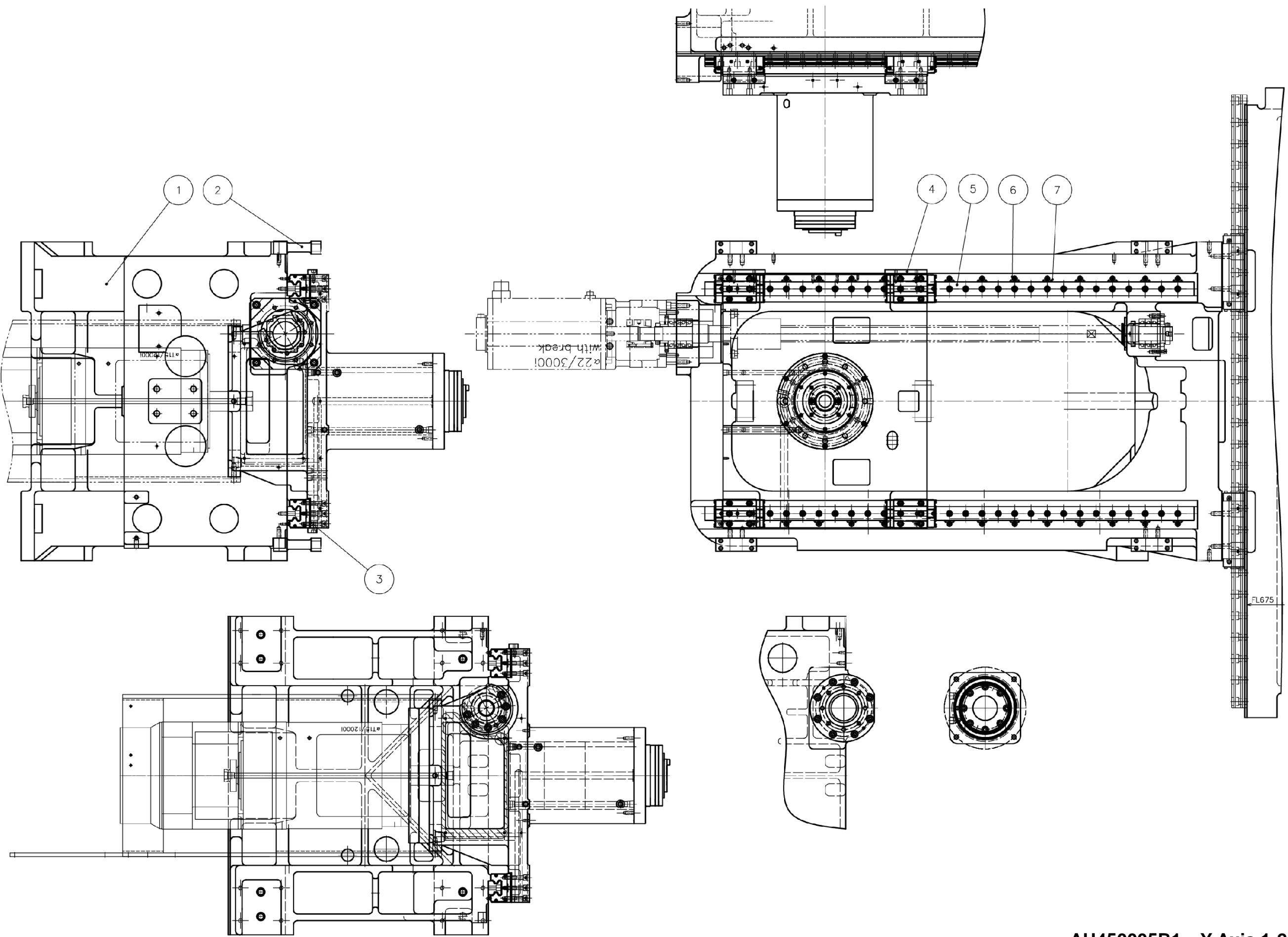
**A0AD002B0 Spindle Head 2-2
(HSK)**



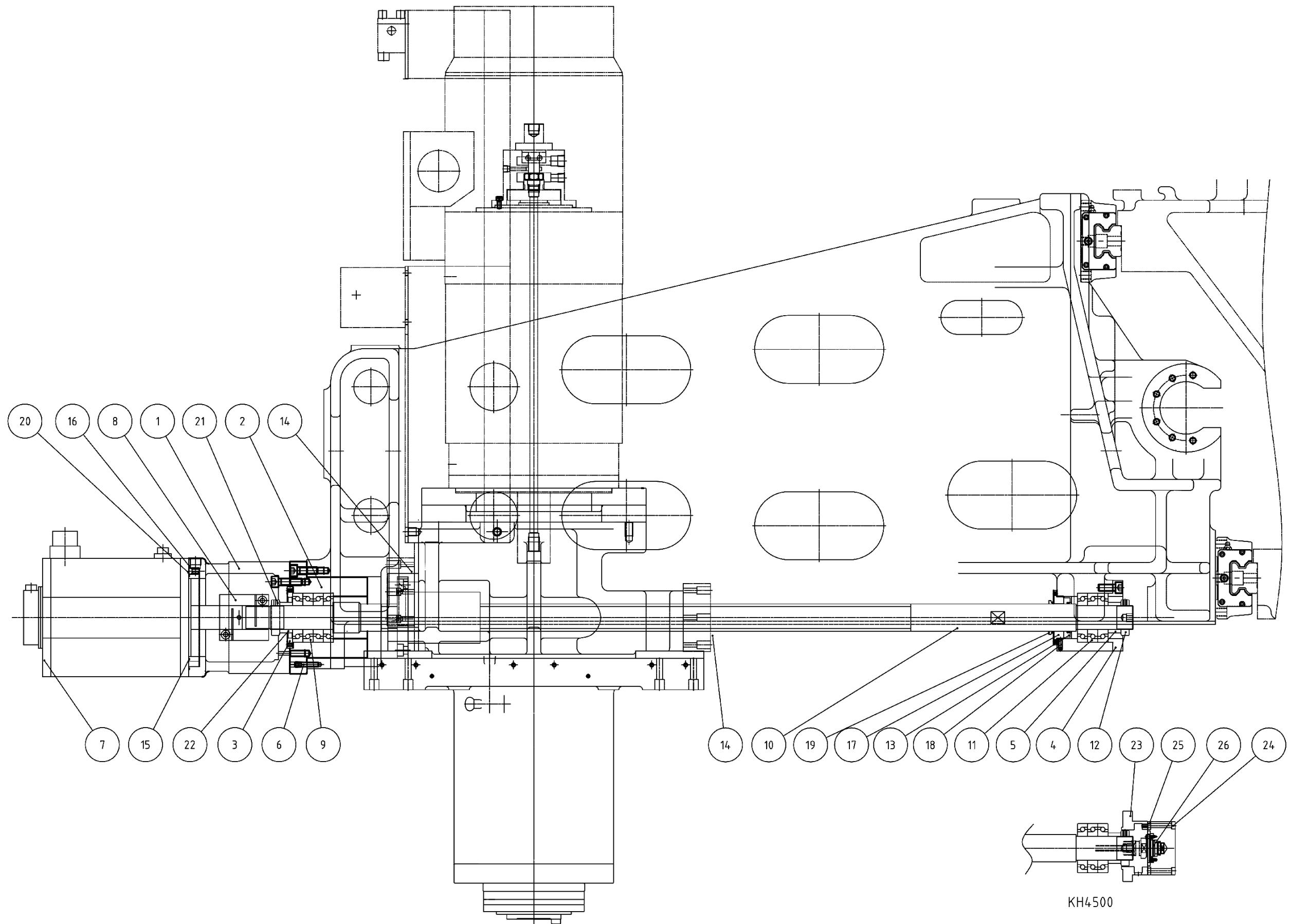
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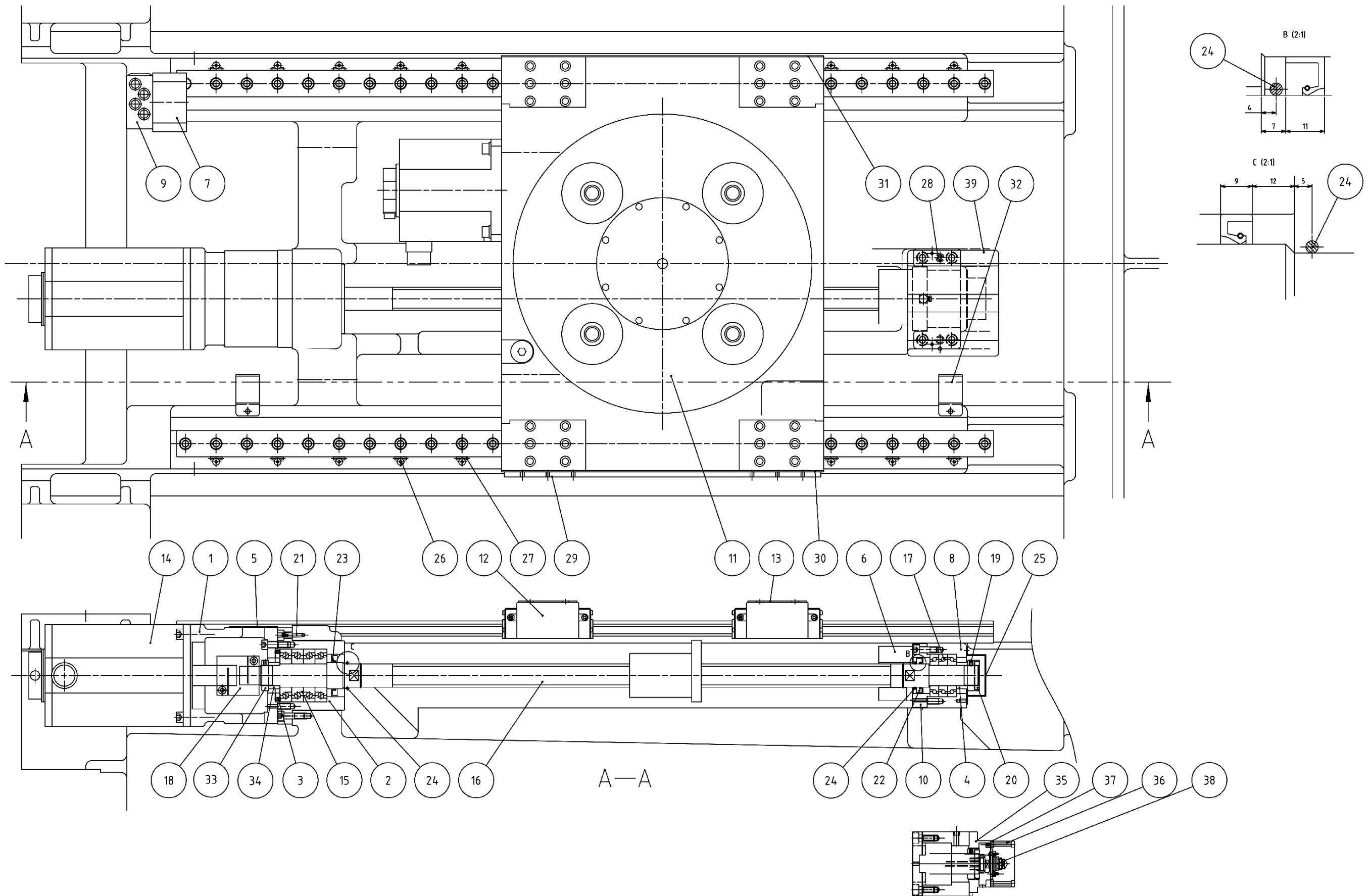
AH450004A1 X Axis 2-2



AH450005B1 Y Axis 1-2

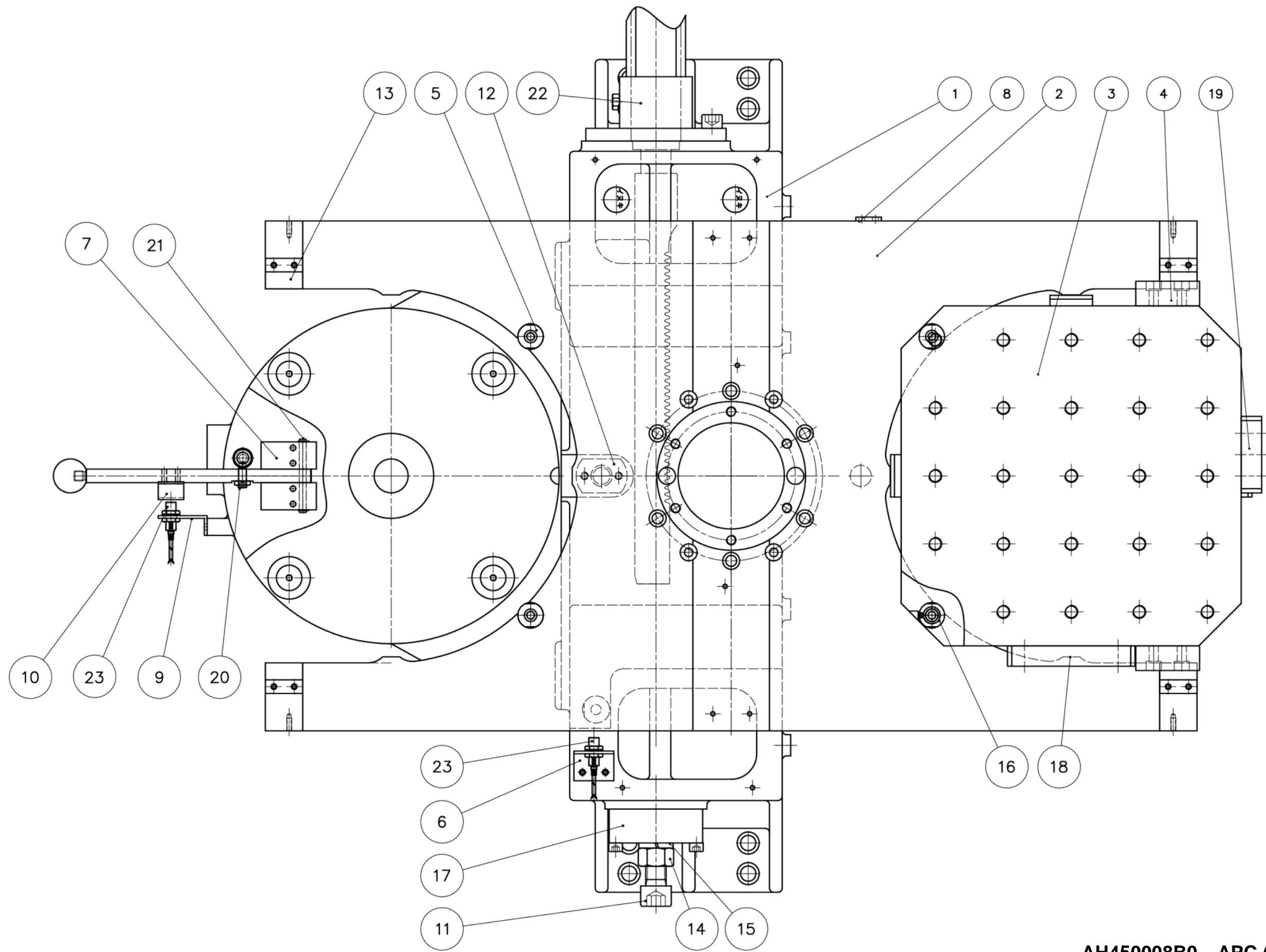


AH450006B1 Y Axis 2-2

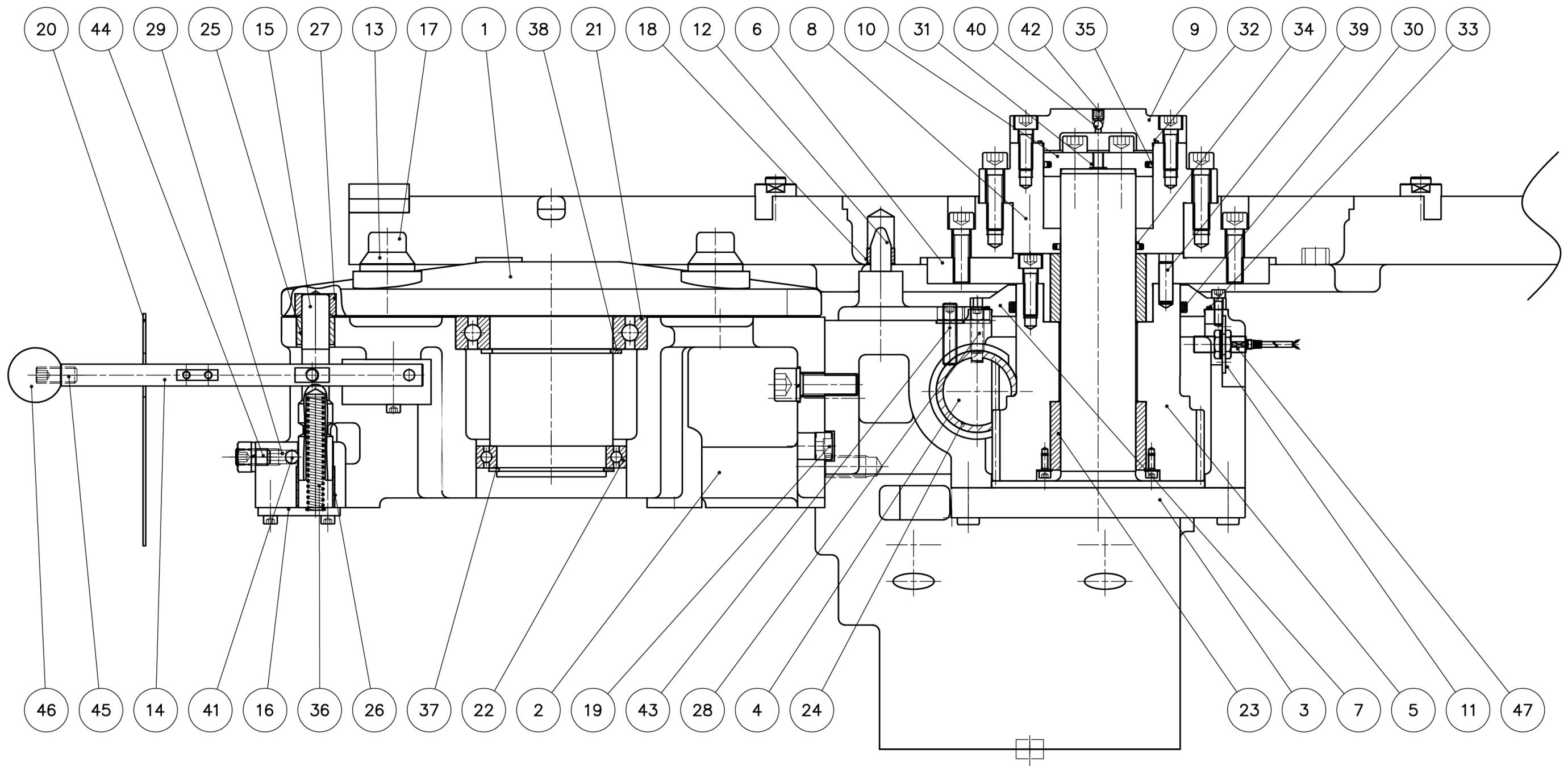


KH4500

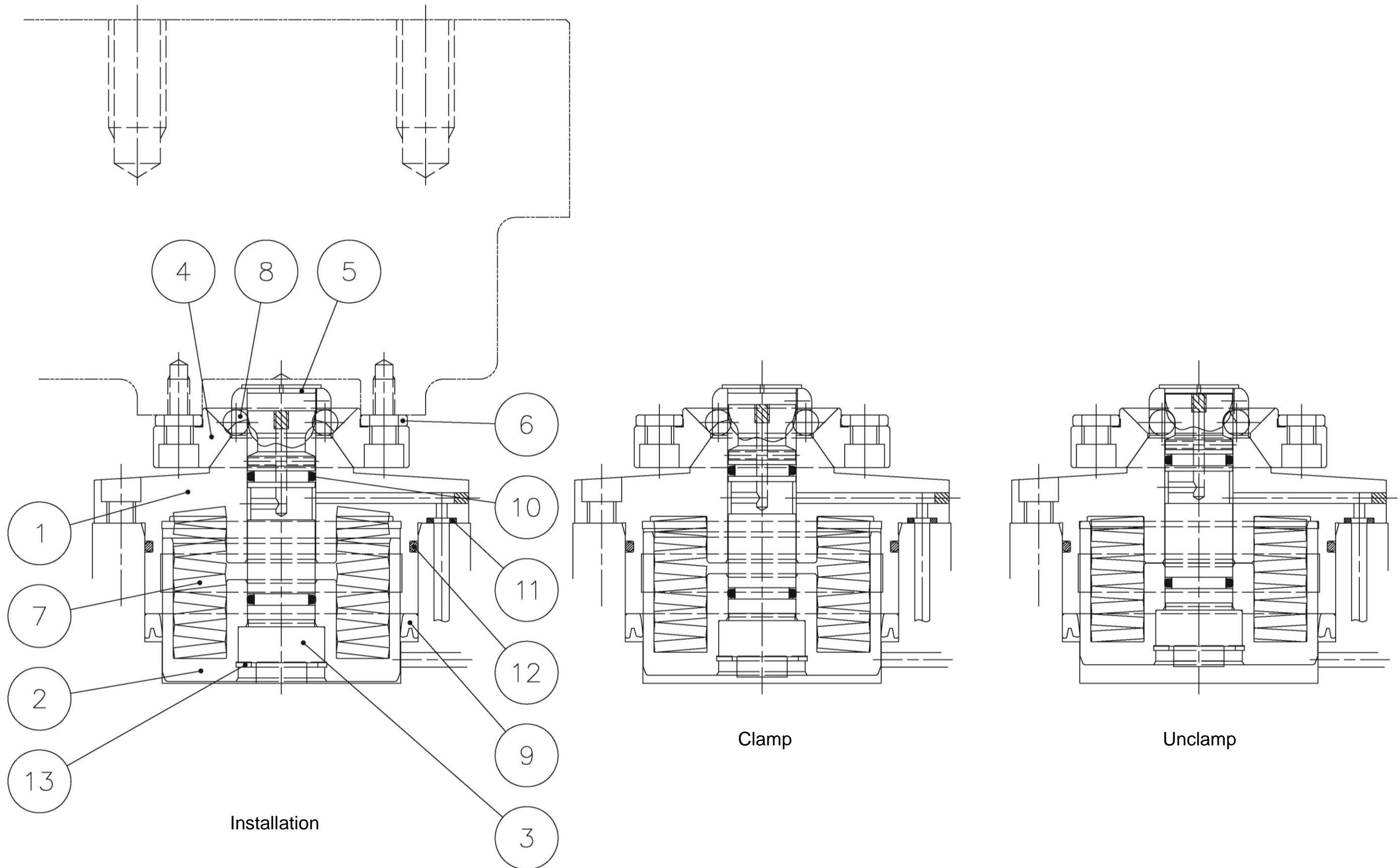
AH450007A2 Z Axis



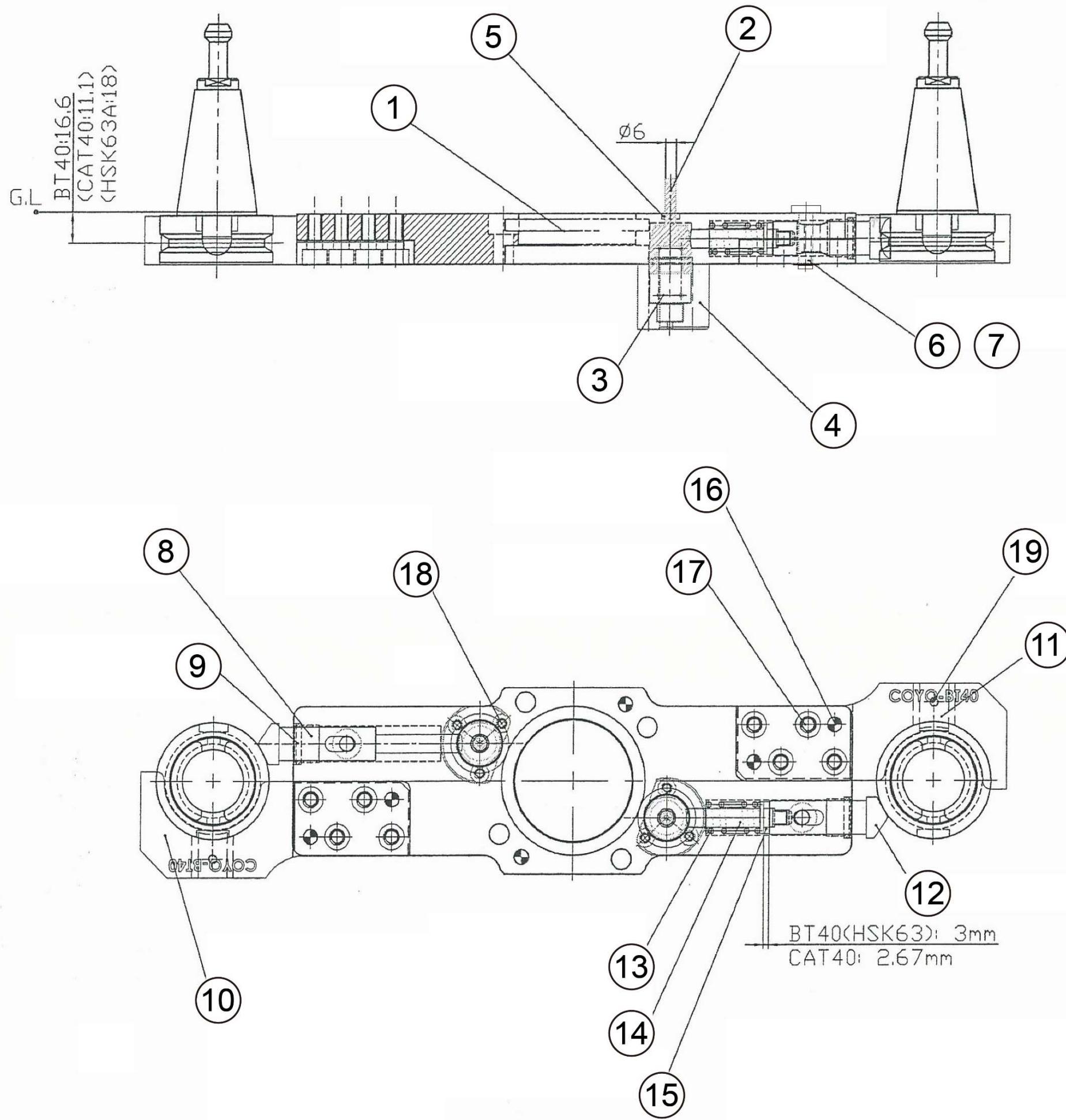
AH450008B0 APC (Top View)



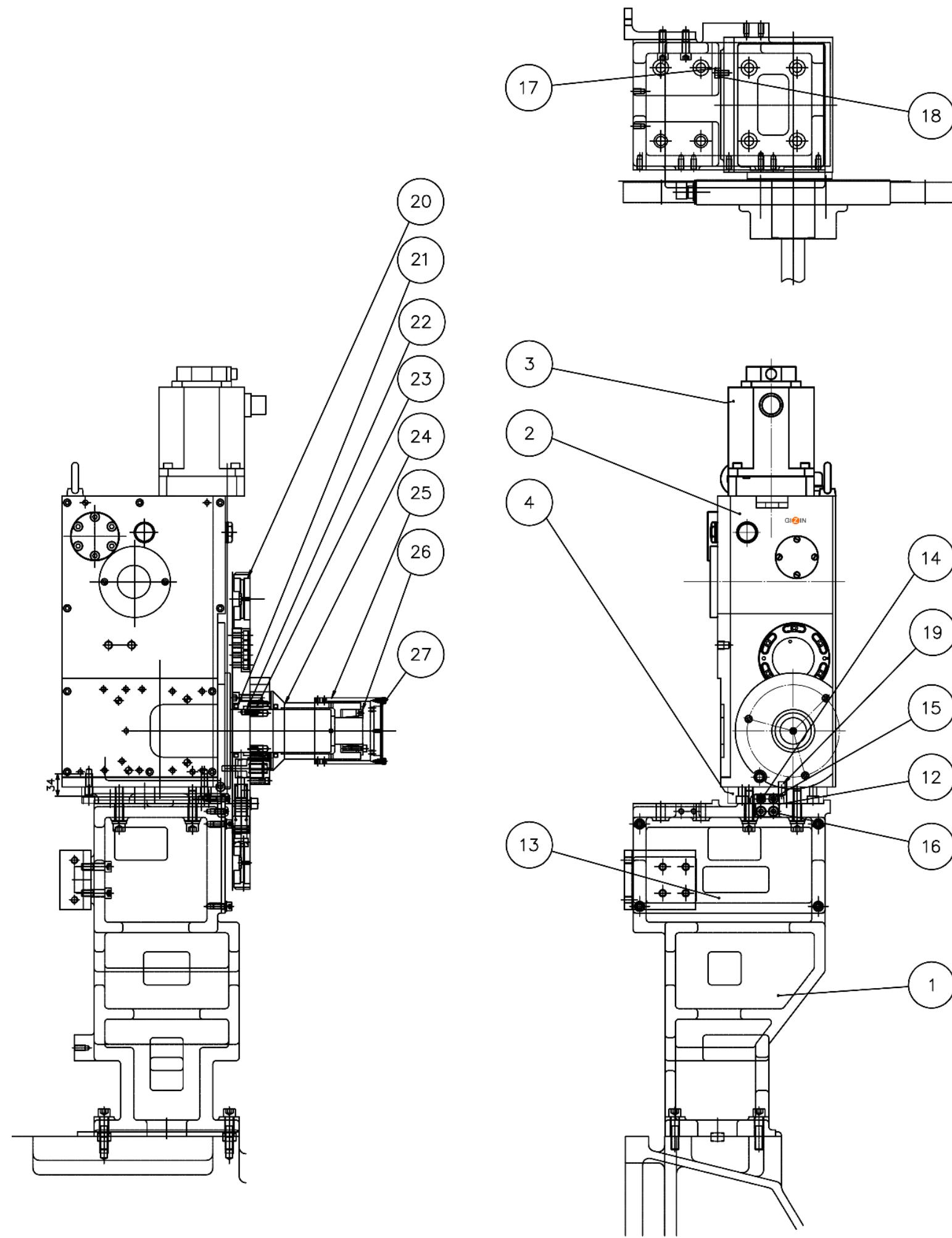
AH450009B0 APC (Side View)



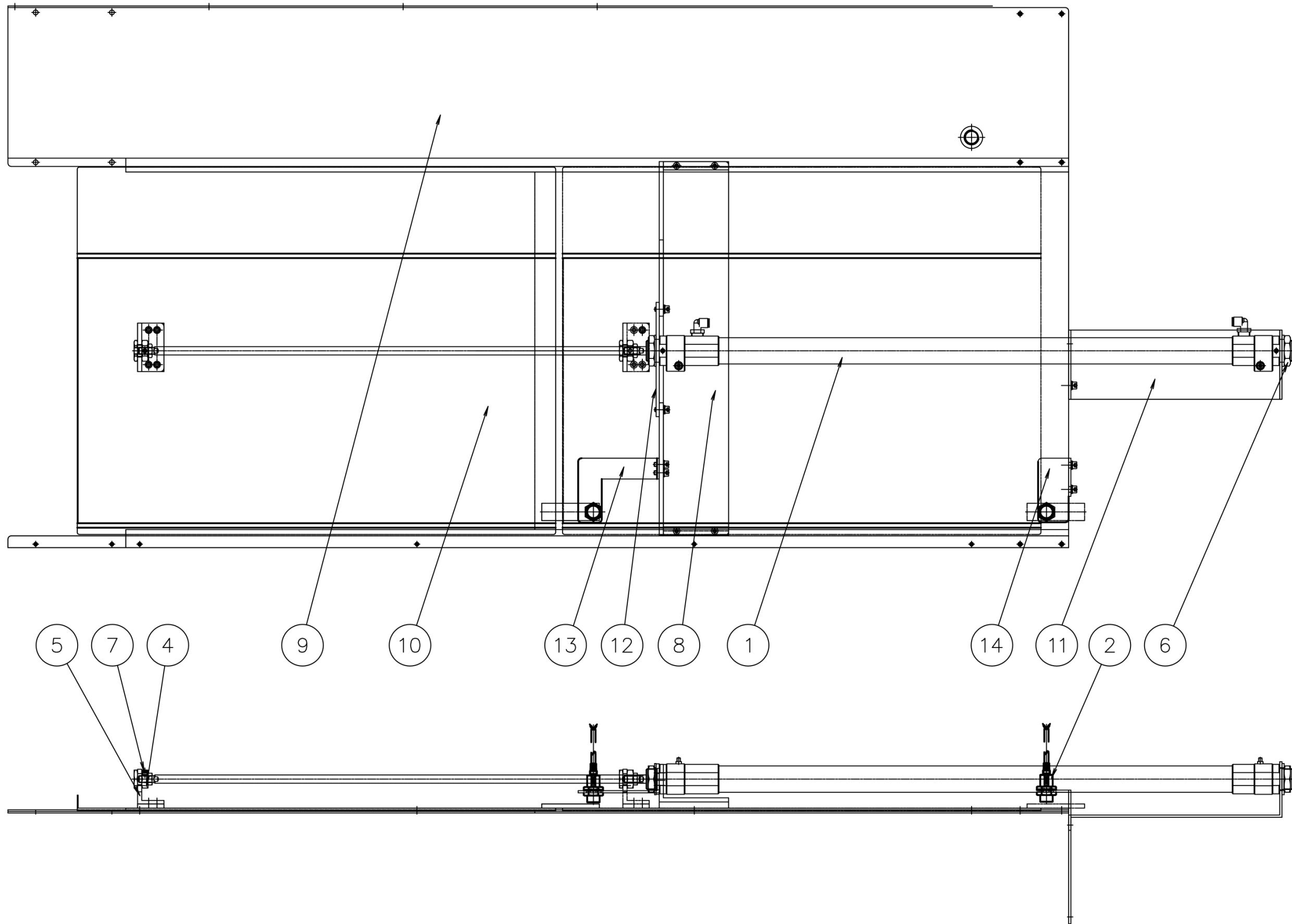
AH450010A0 Pallet Clamping Unit



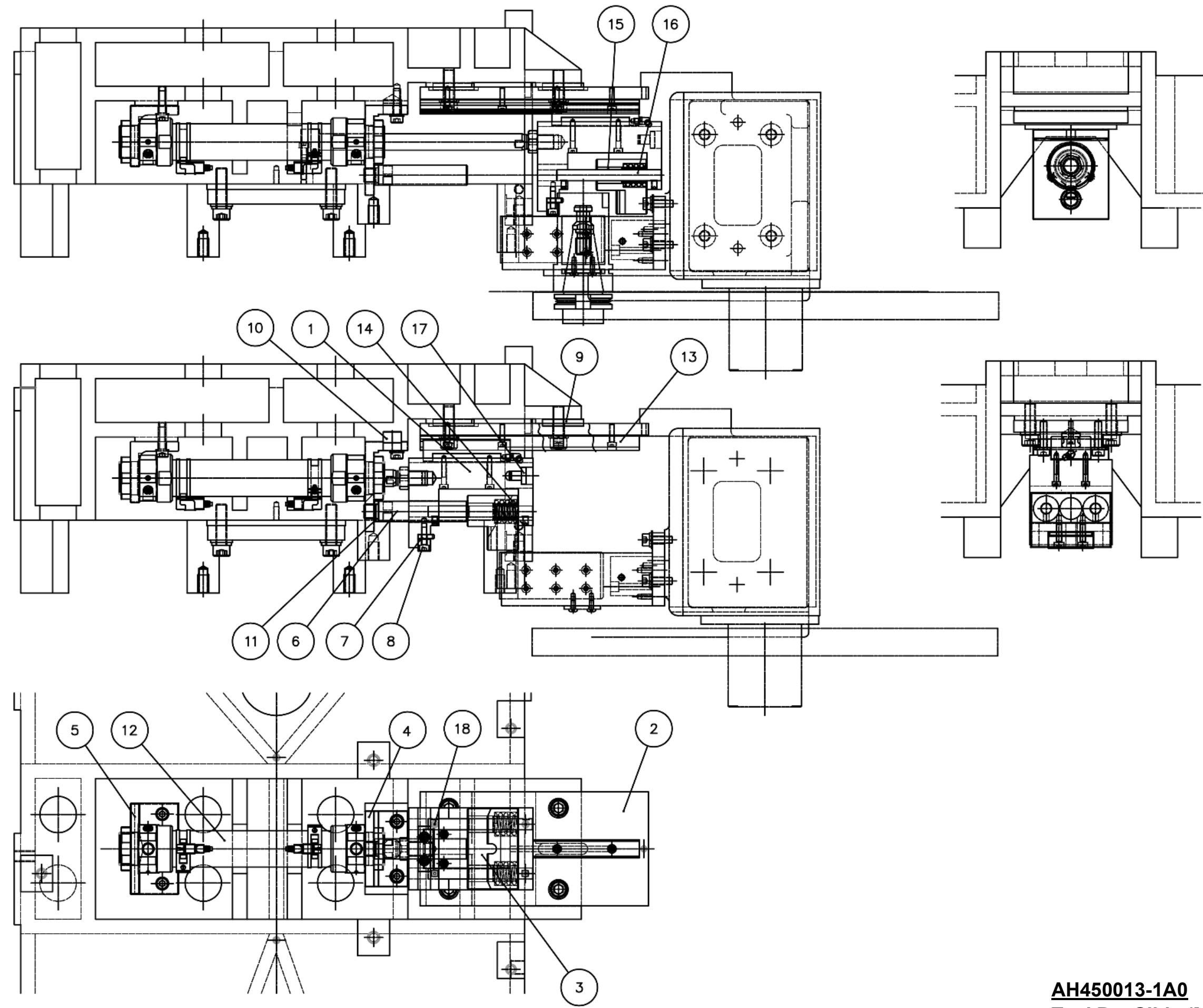
B-AM41400000-R1 Double Arm



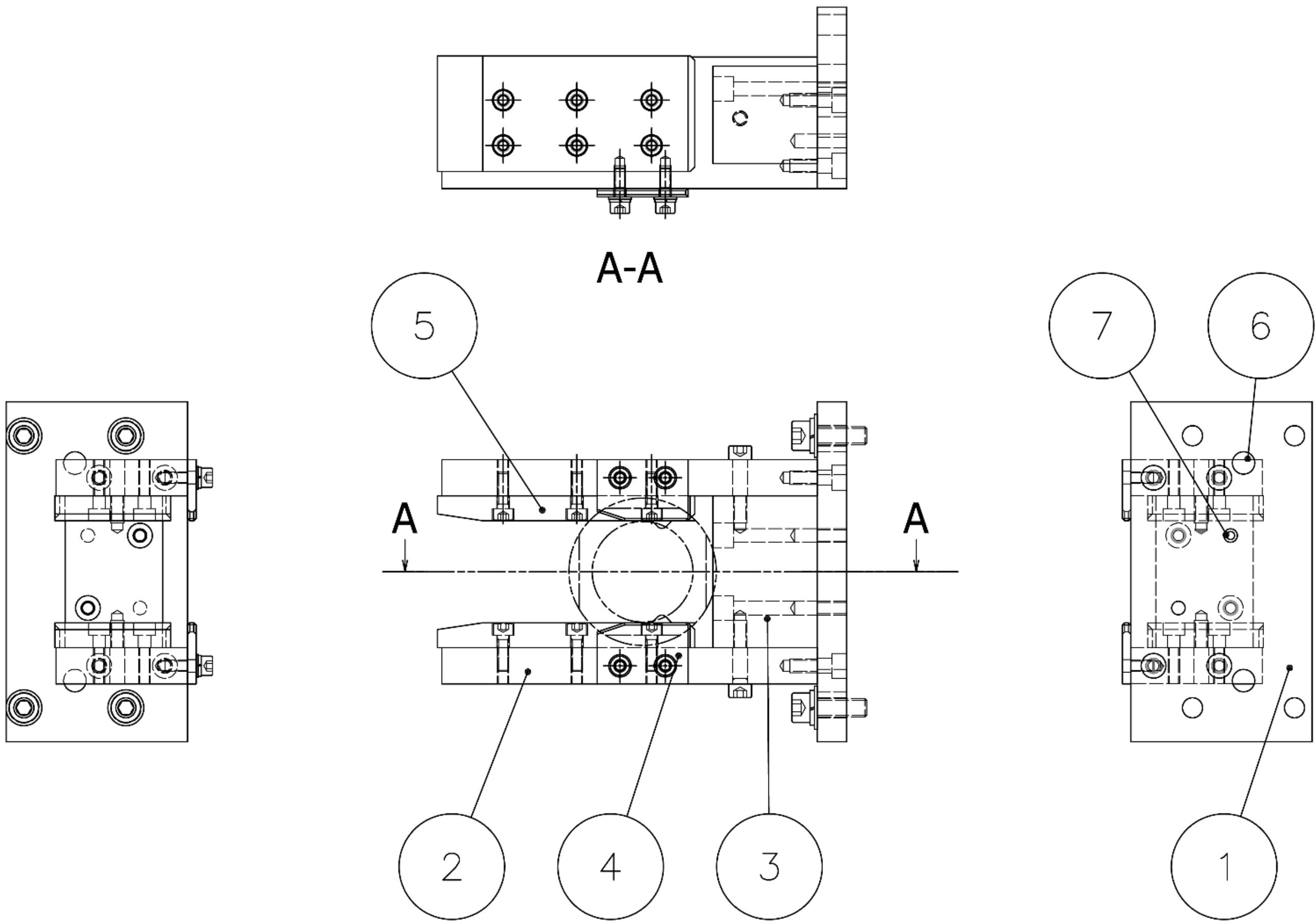
AH450012B2 ATC Unit



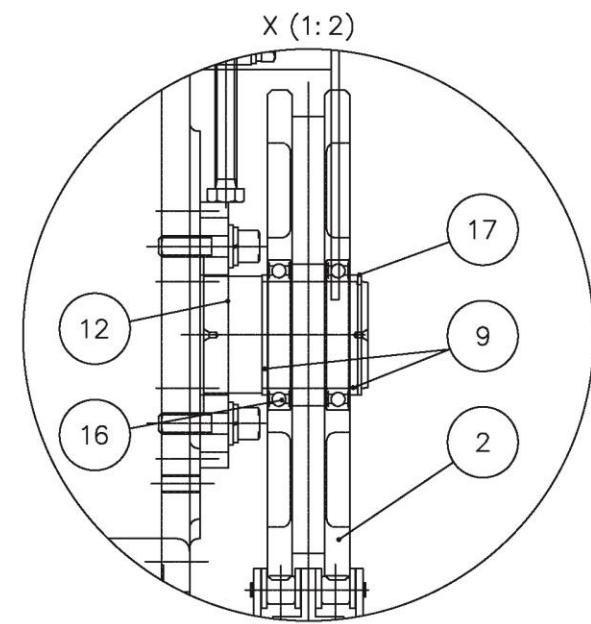
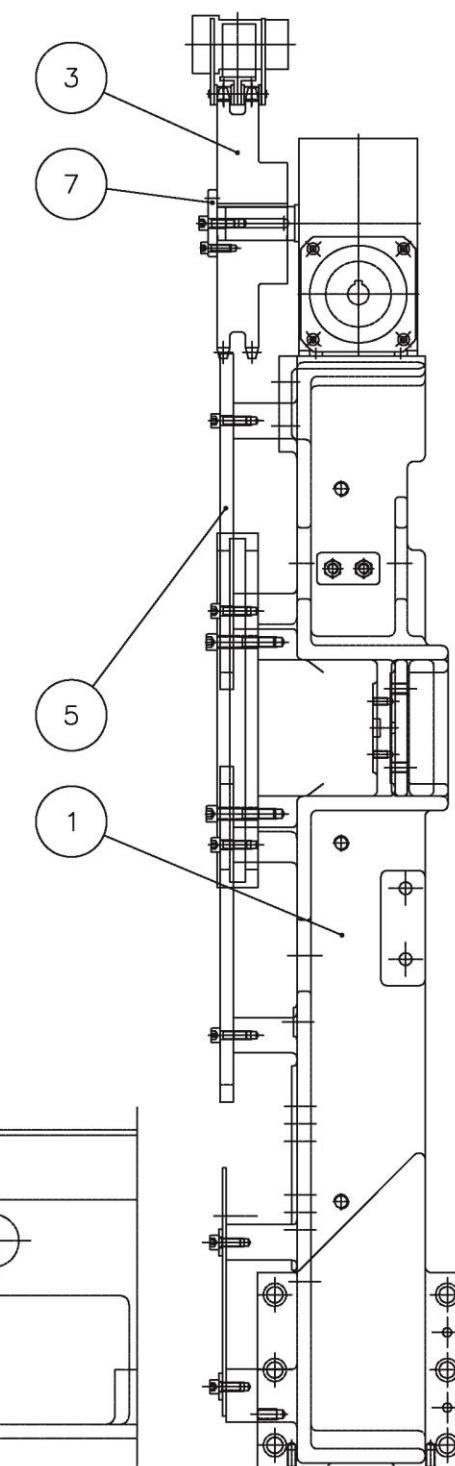
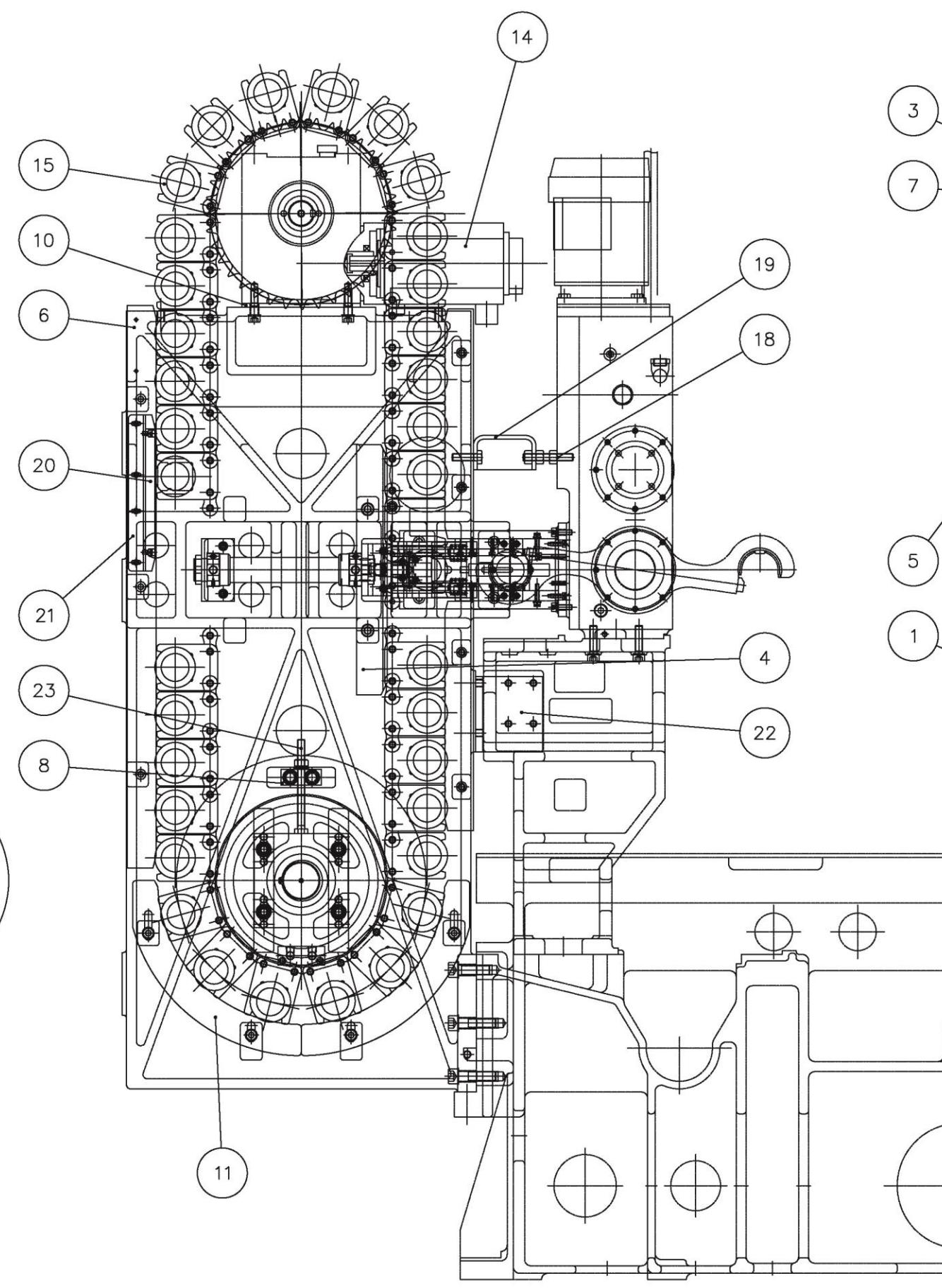
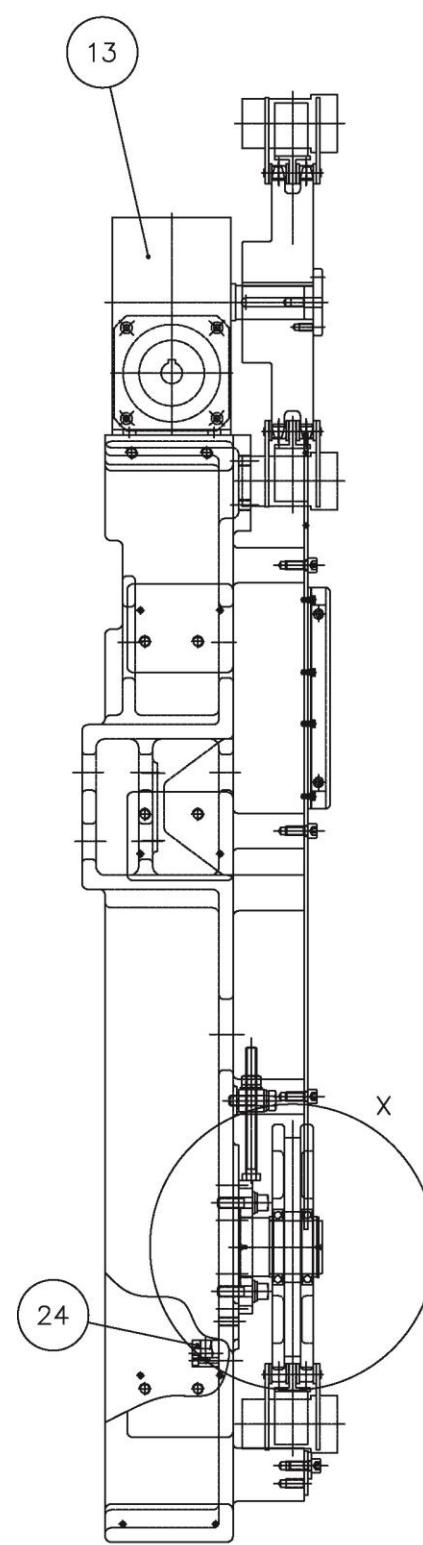
AH450016A1 ATC Shutter



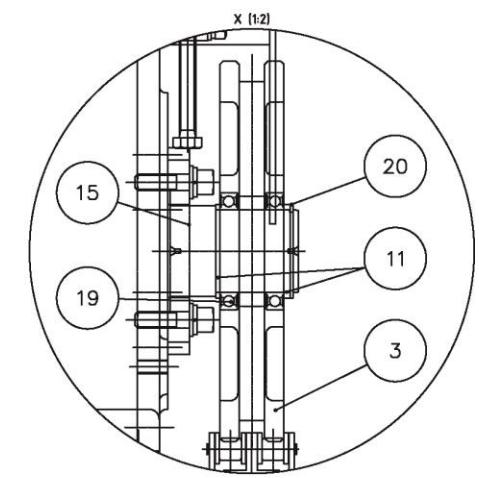
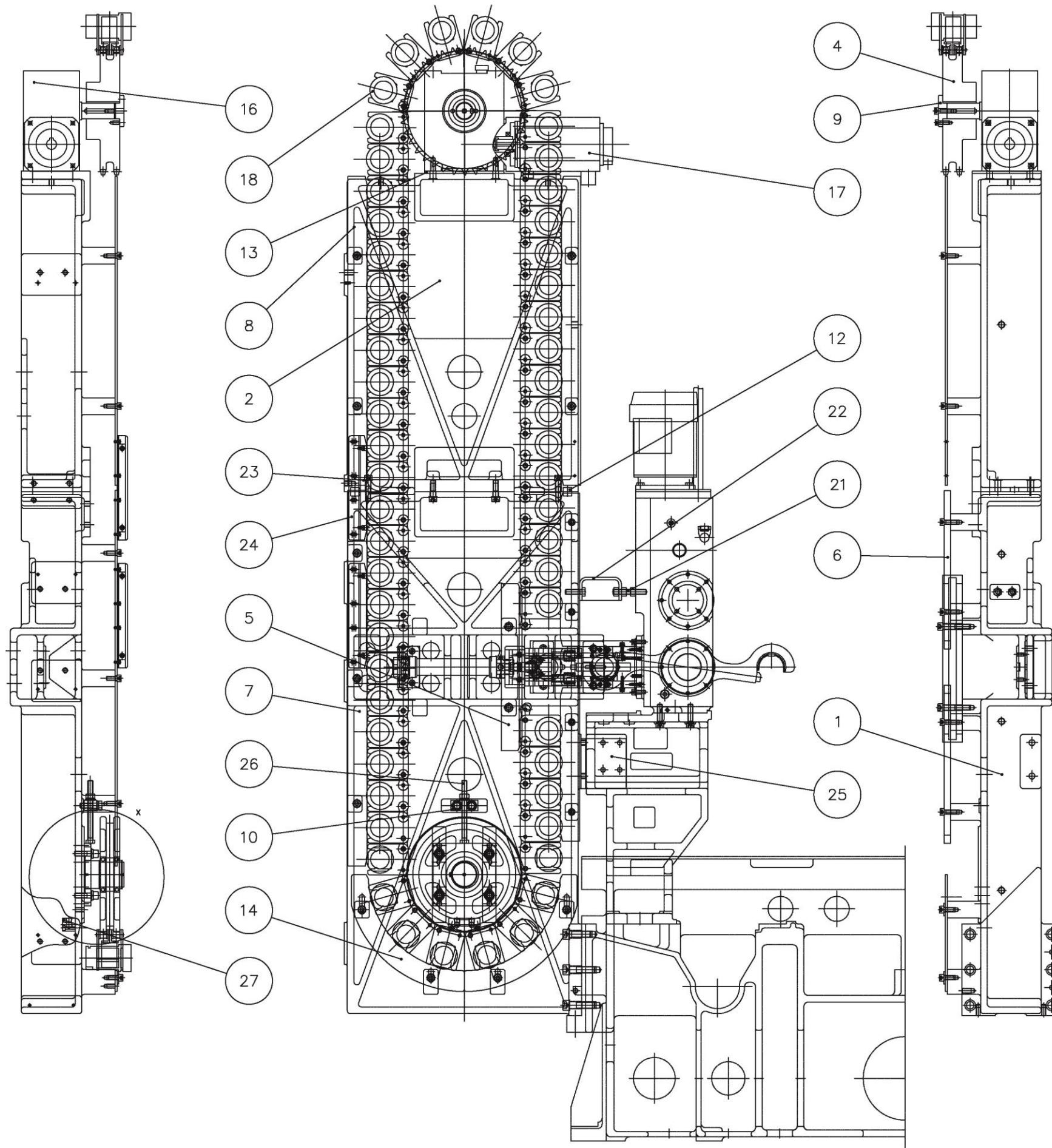
AH450013-1A0
Tool Pot Slide (Magazine Side)



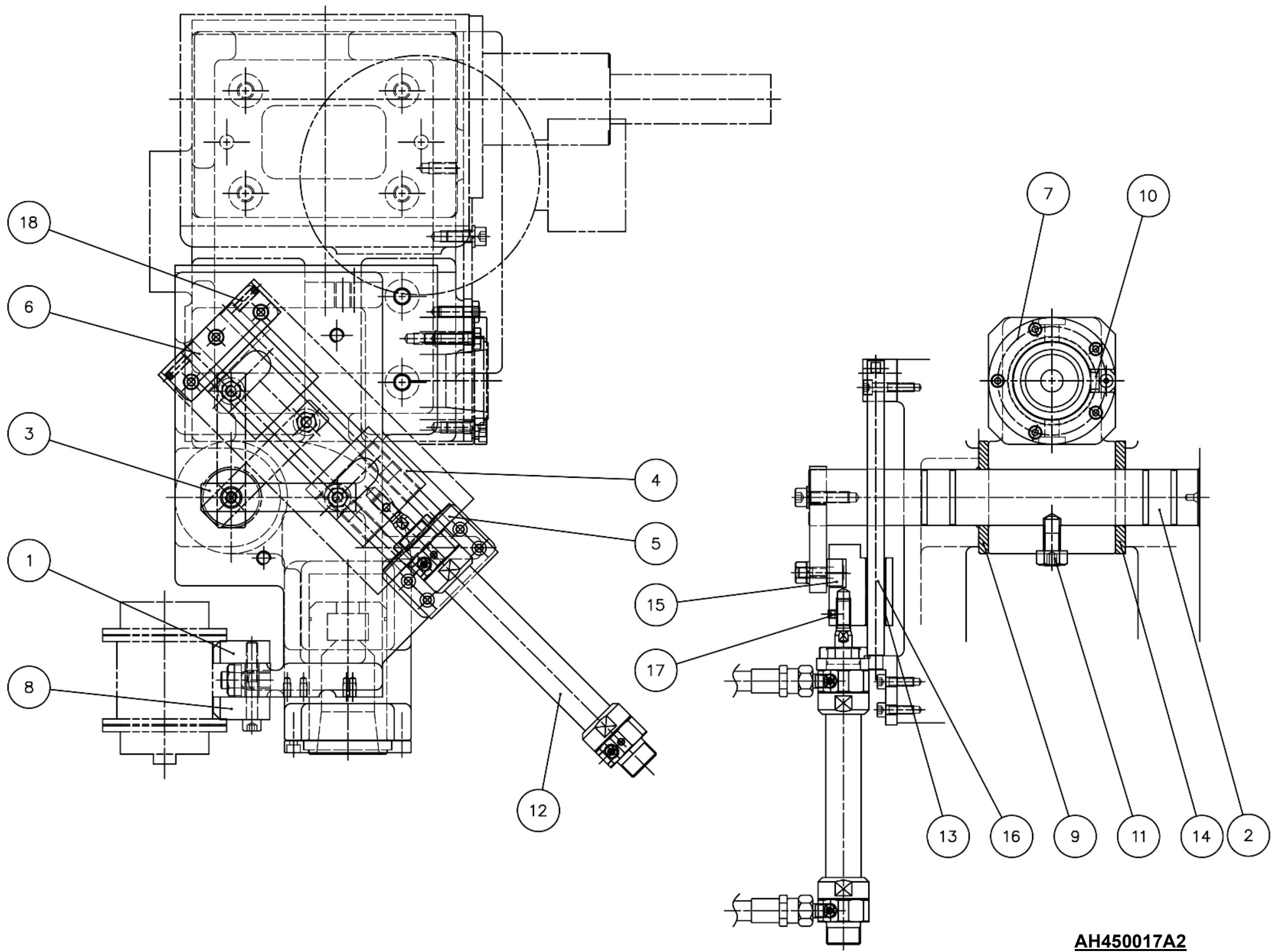
AH450013-2A0
Tool Pot Slide (ATC Unit Side)



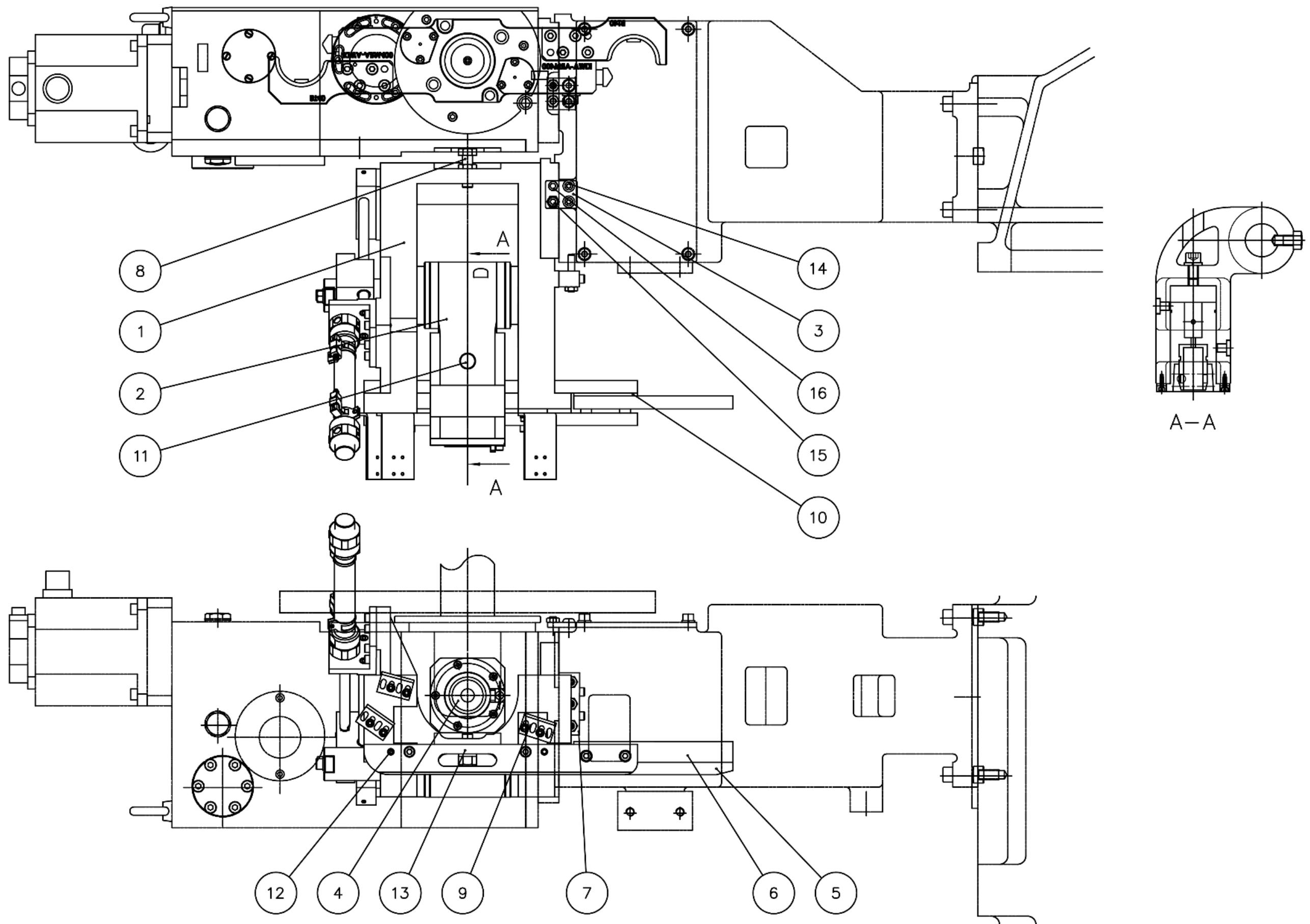
AH450014A1
ATC Magazine (40Tools)



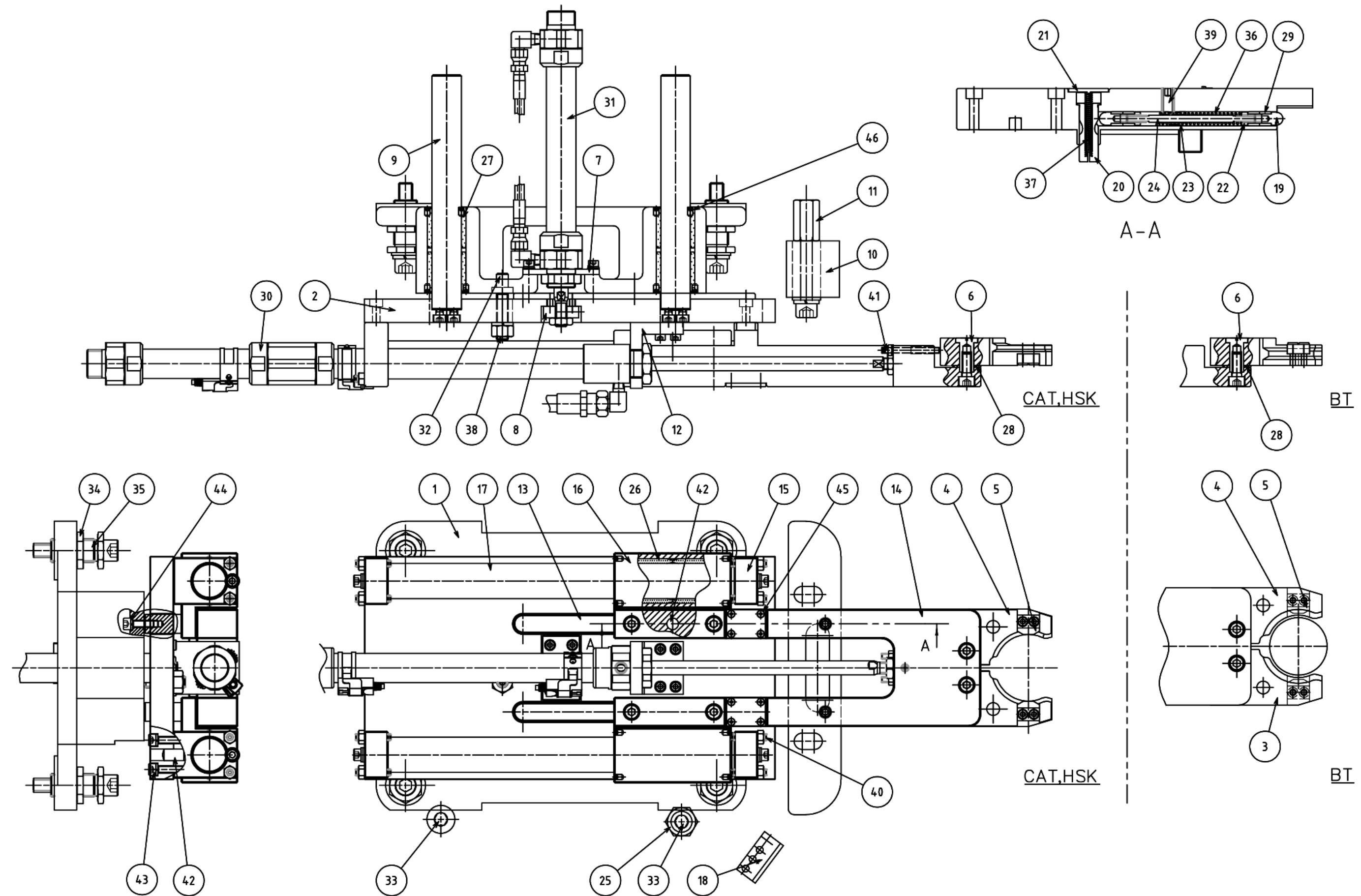
AH450015A1
ATC Magazine (60Tools)



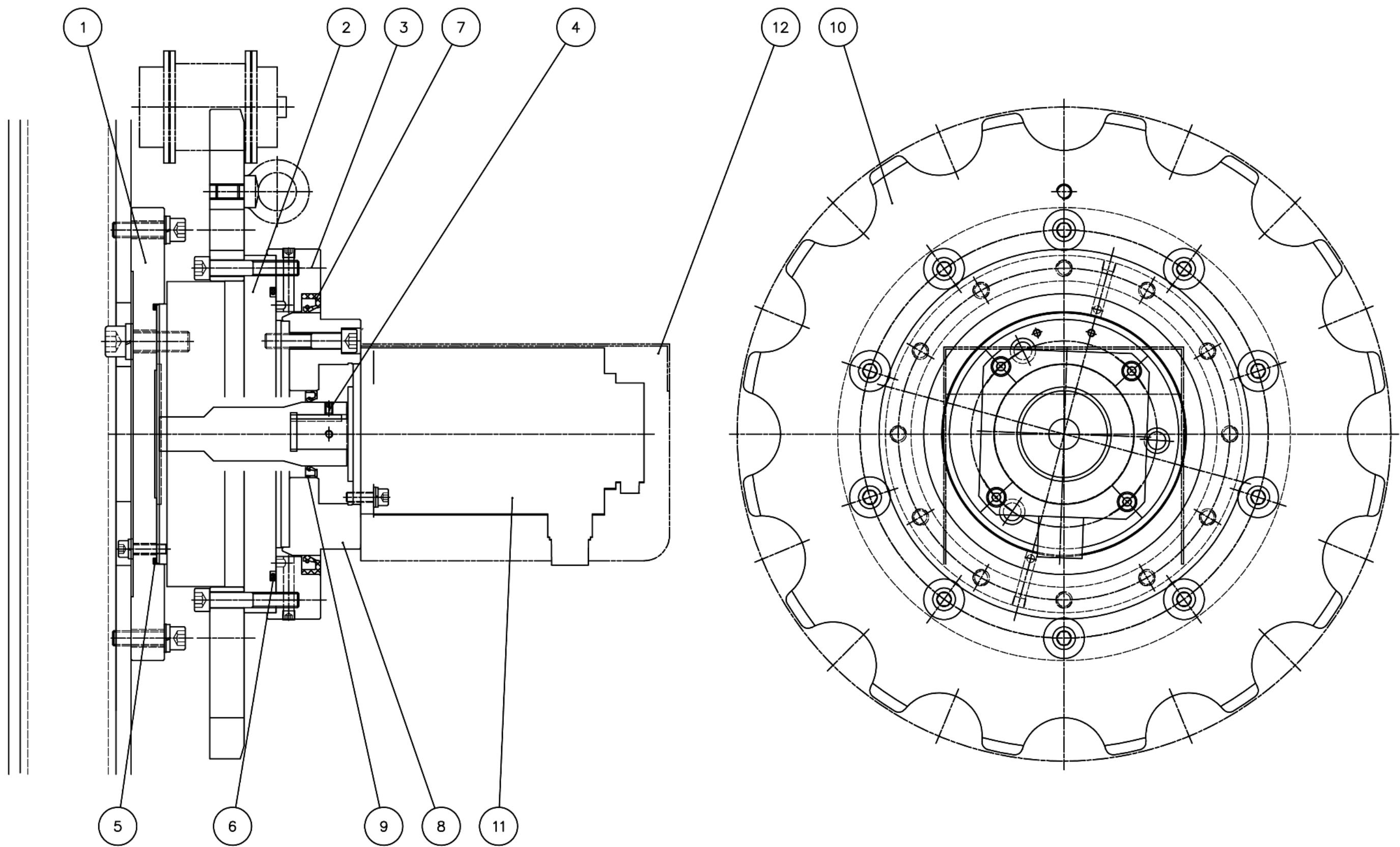
AH450017A2
Pot Index Mechanism (Top View)



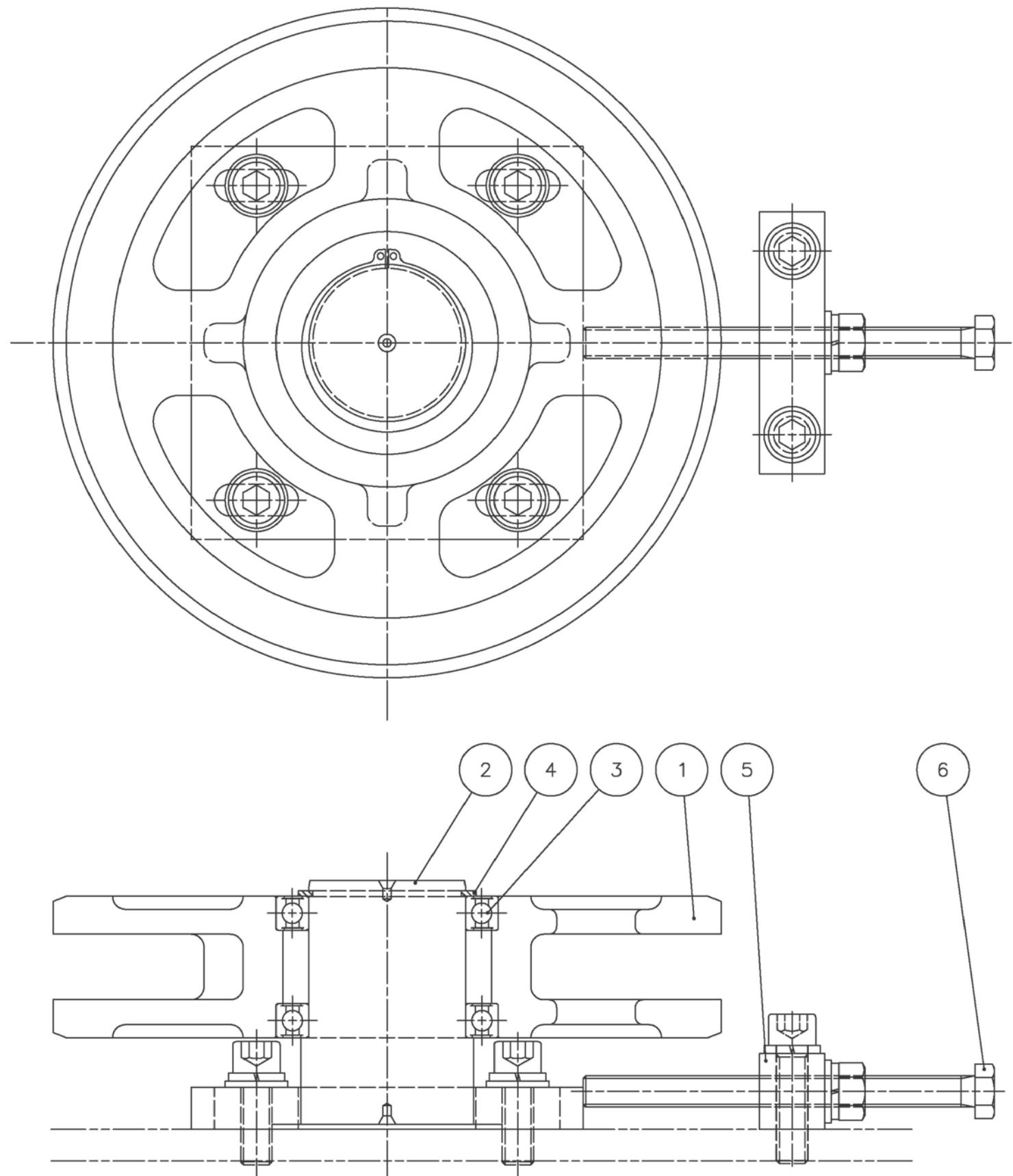
AH450018B0
Pot Index Mechanism (Side View)



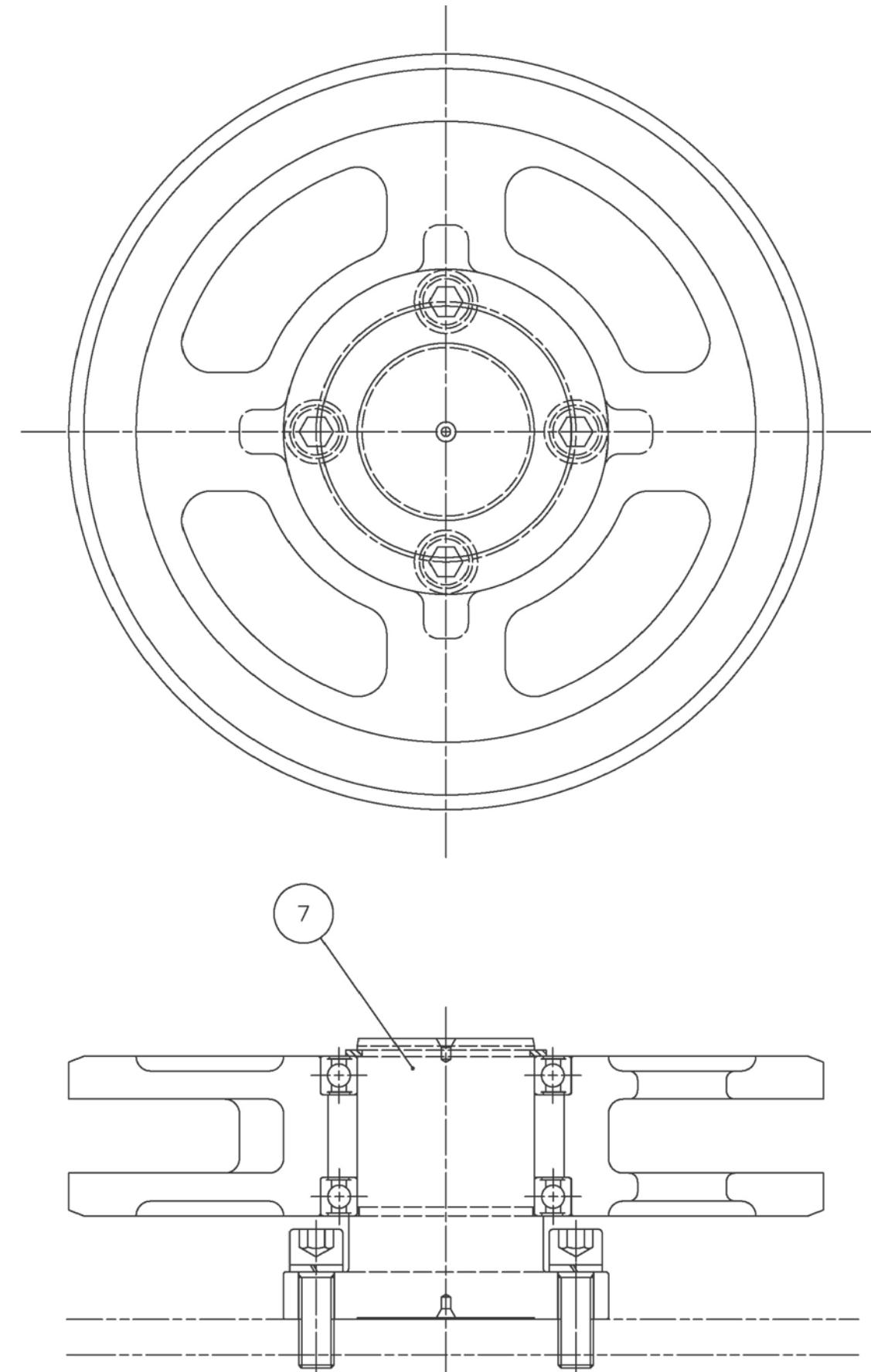
AH450019A2 ATC Single Arm



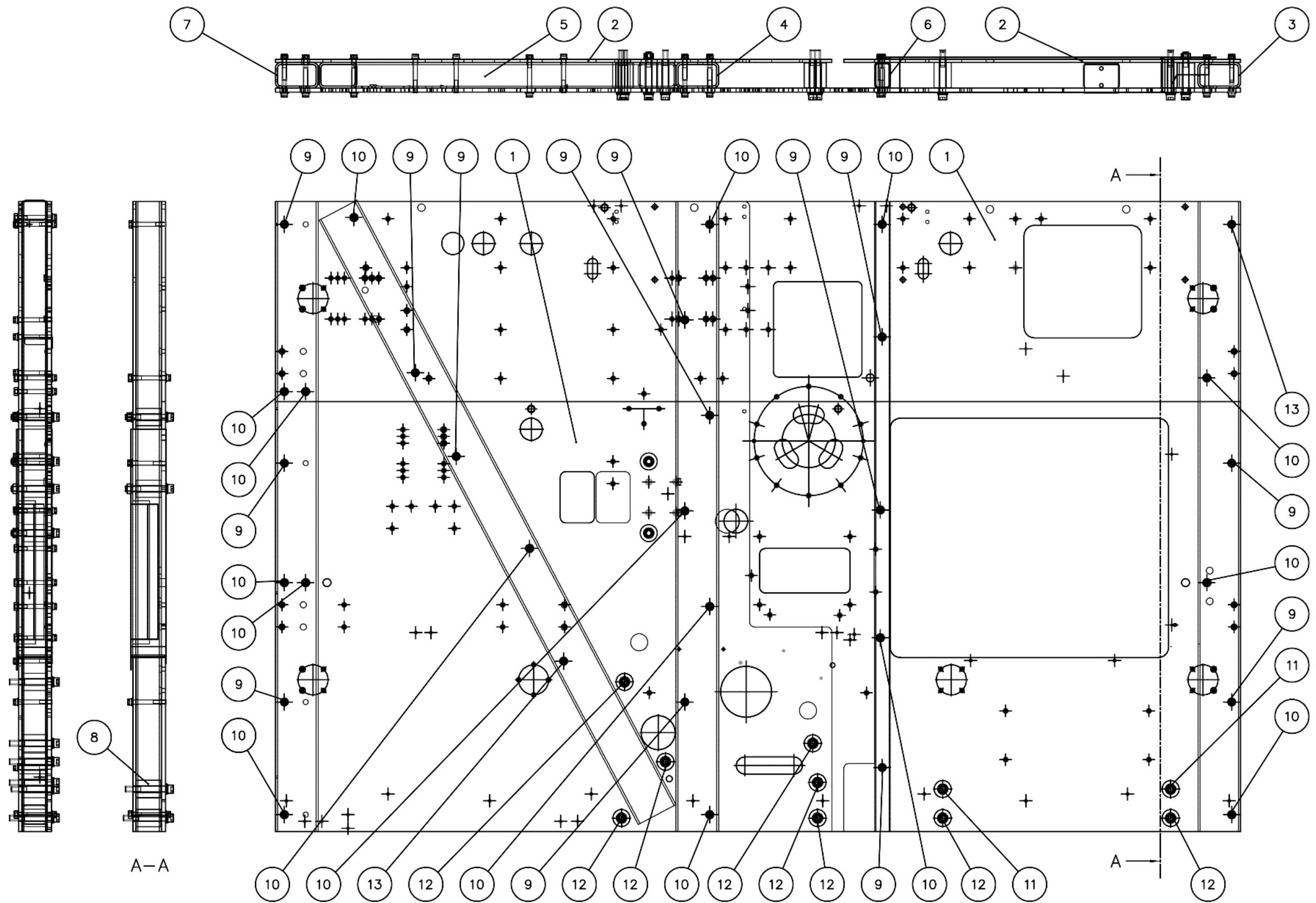
AH450020A2
Magazine Reduction Unit (ATC120)



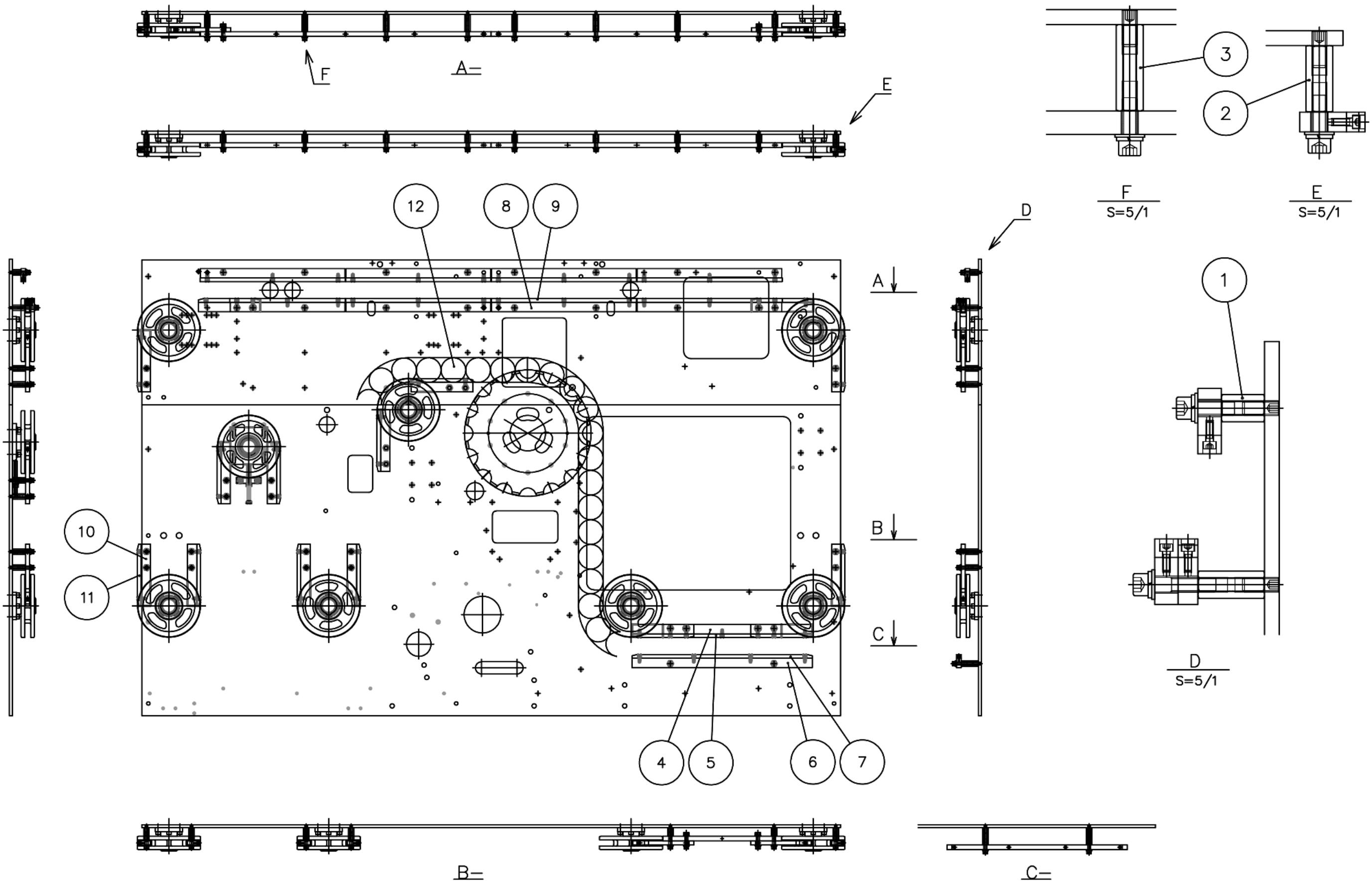
Installation



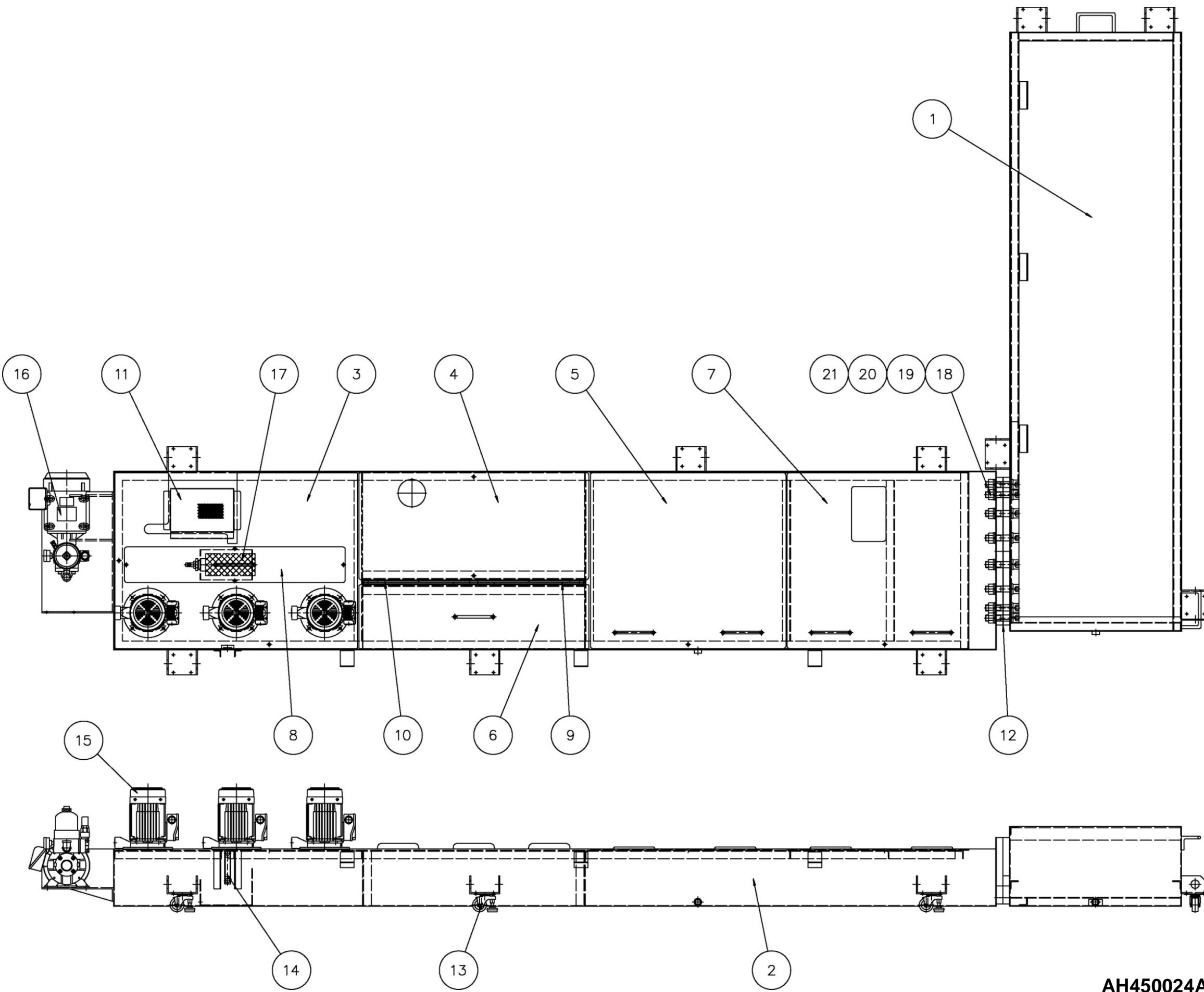
AH450021A Idle Pulley Unit



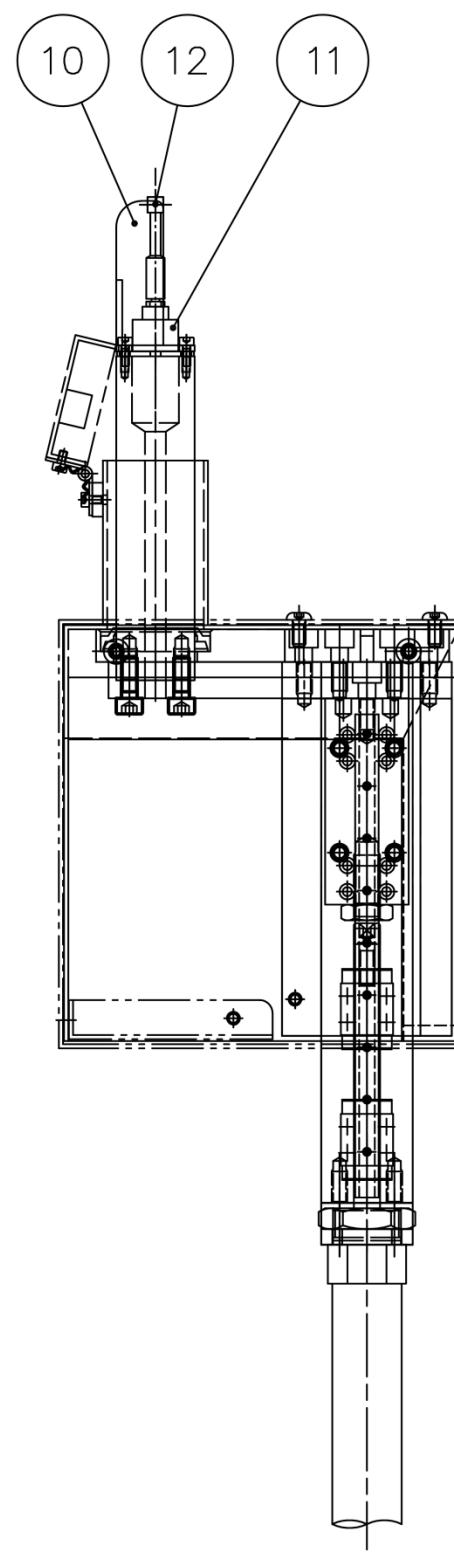
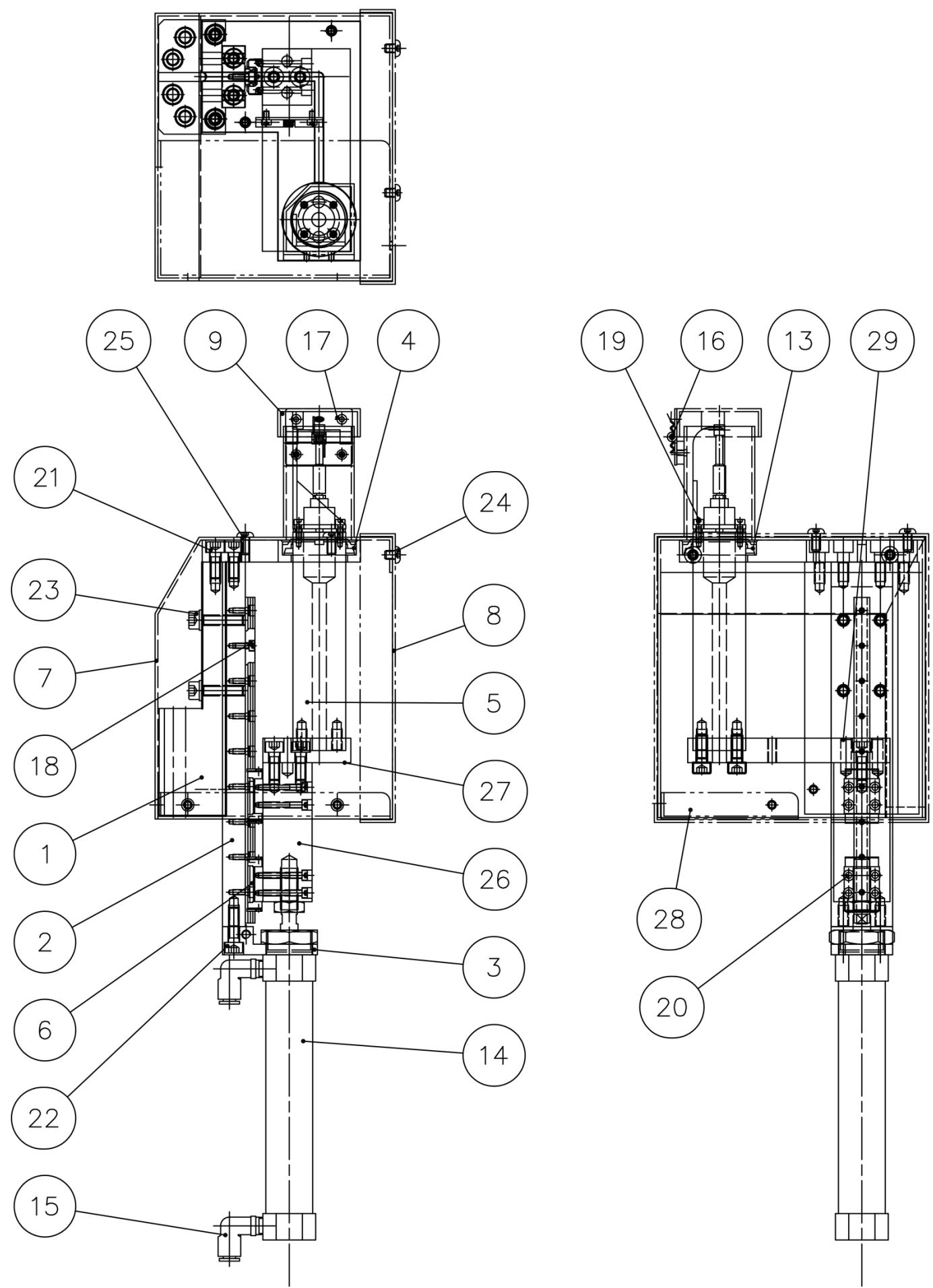
AH450022A2 ATC120 Frame



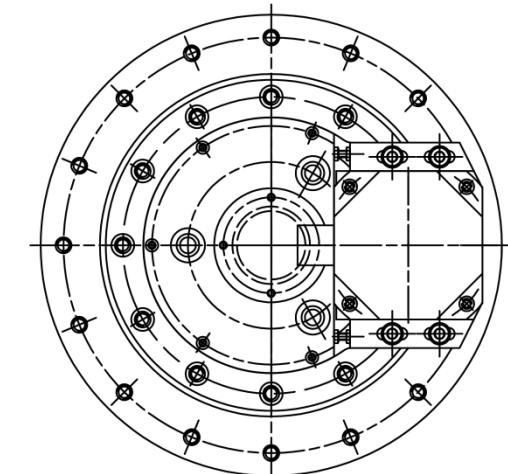
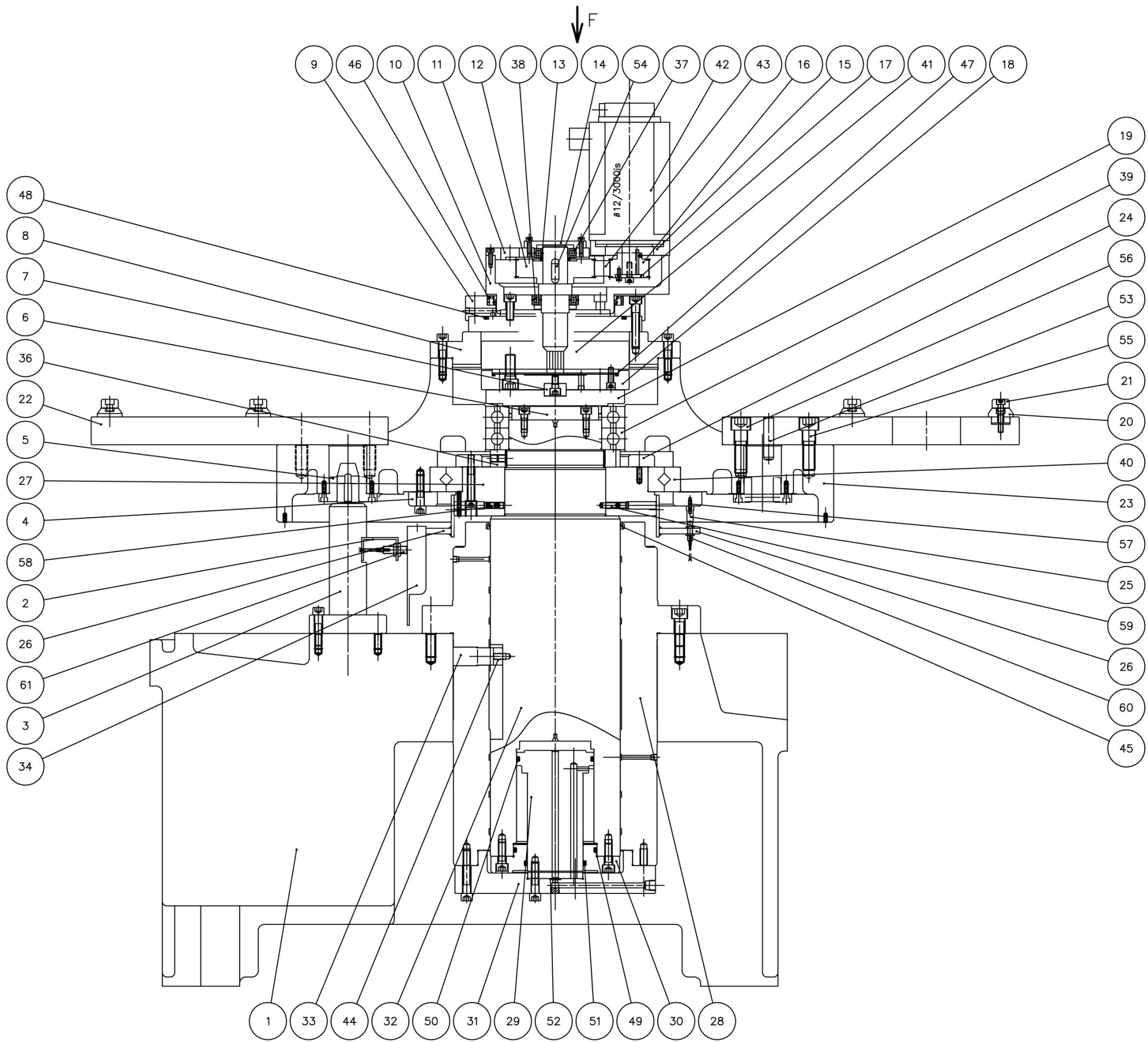
AH450023B1
ATC120 Chain Guide and Tool Pot



AH450024A Coolant Tank

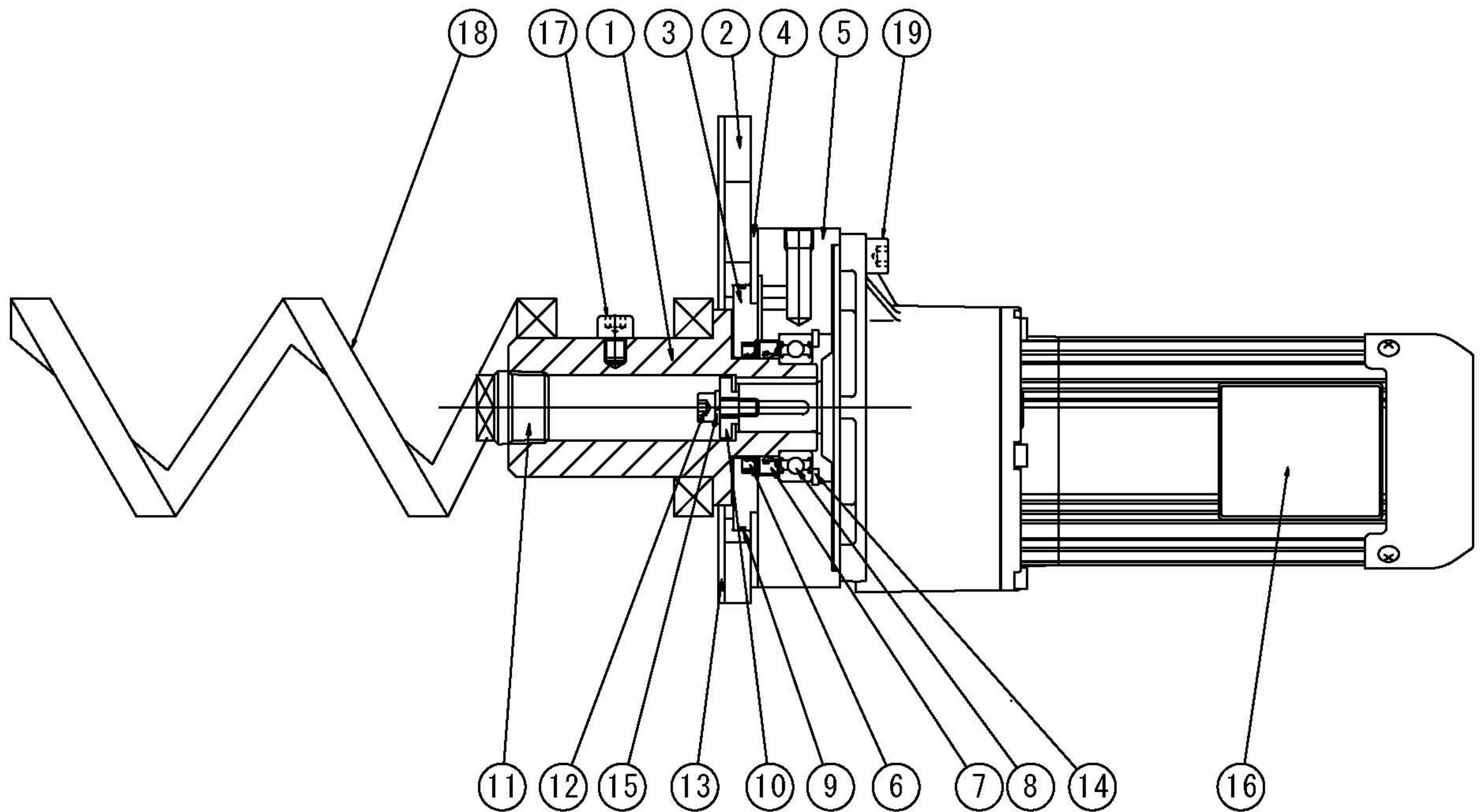


AH450025B0
Pop-up Type MARPOSS

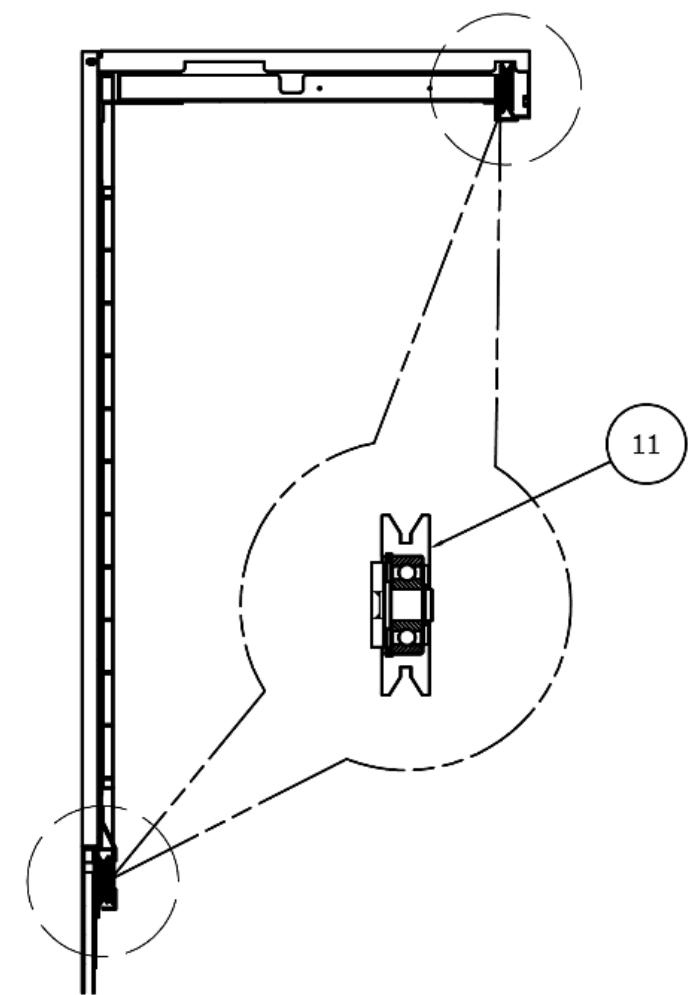
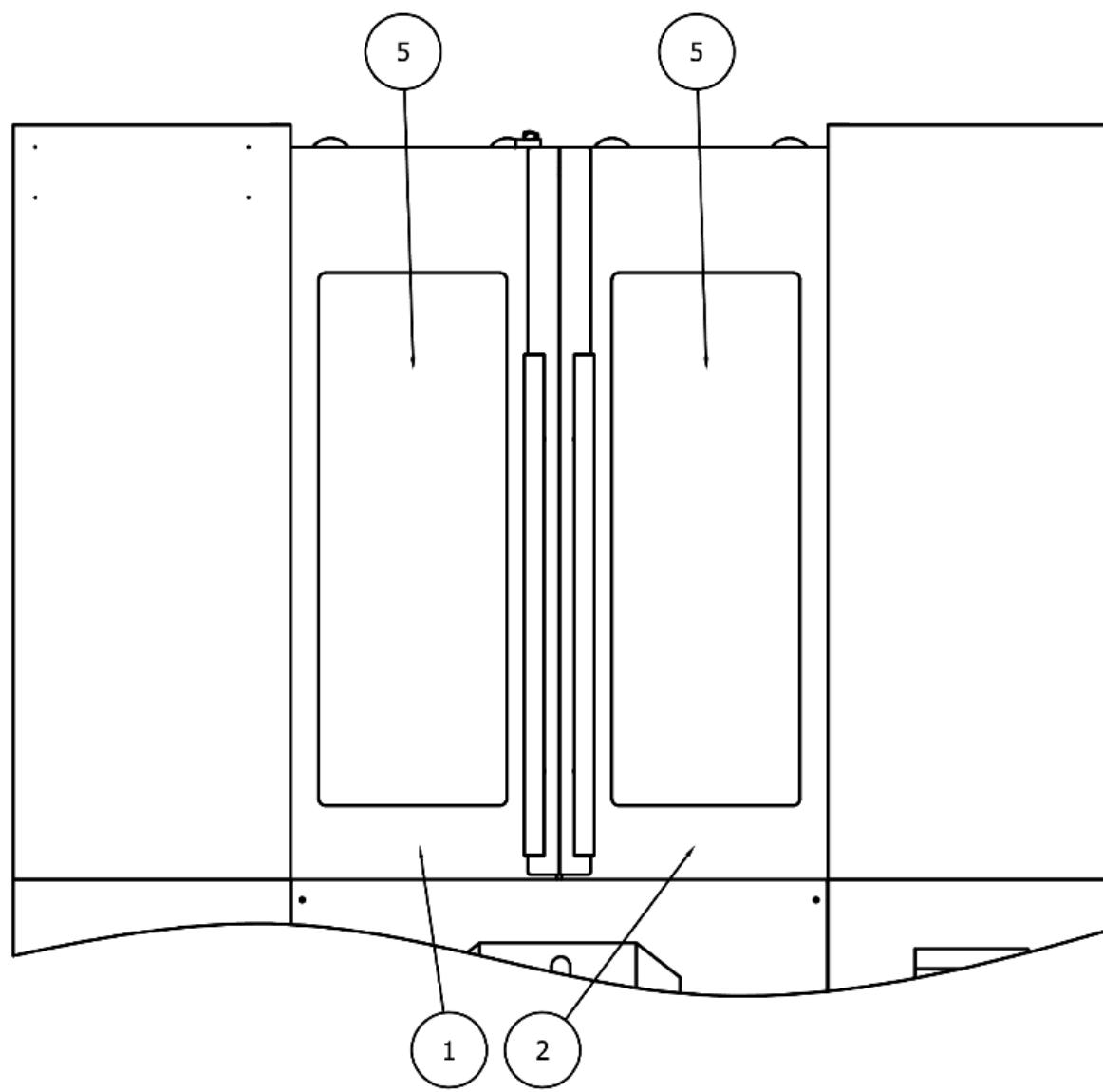
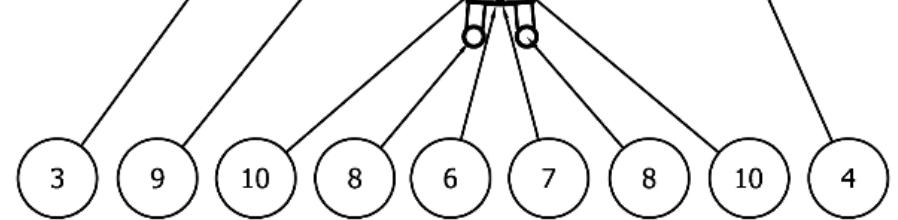
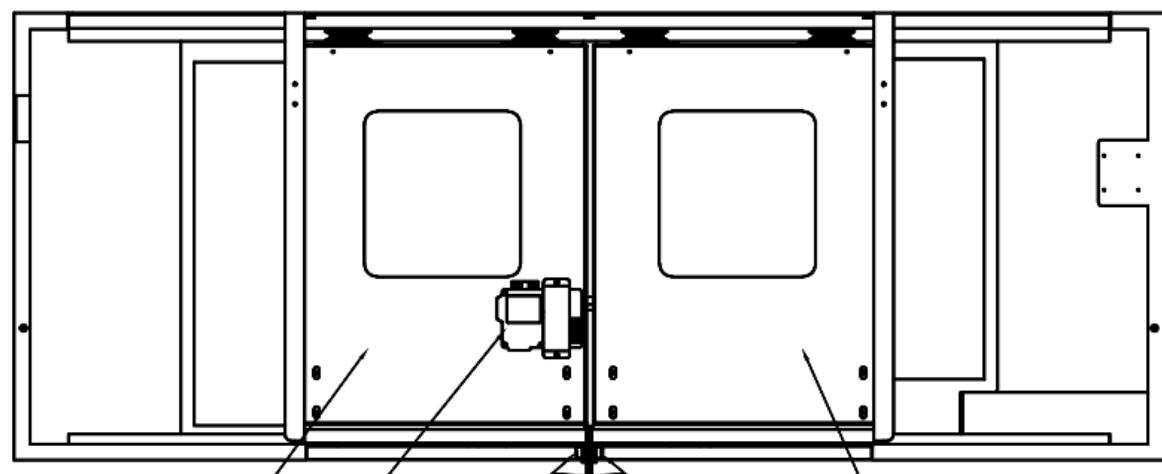


VIEW F

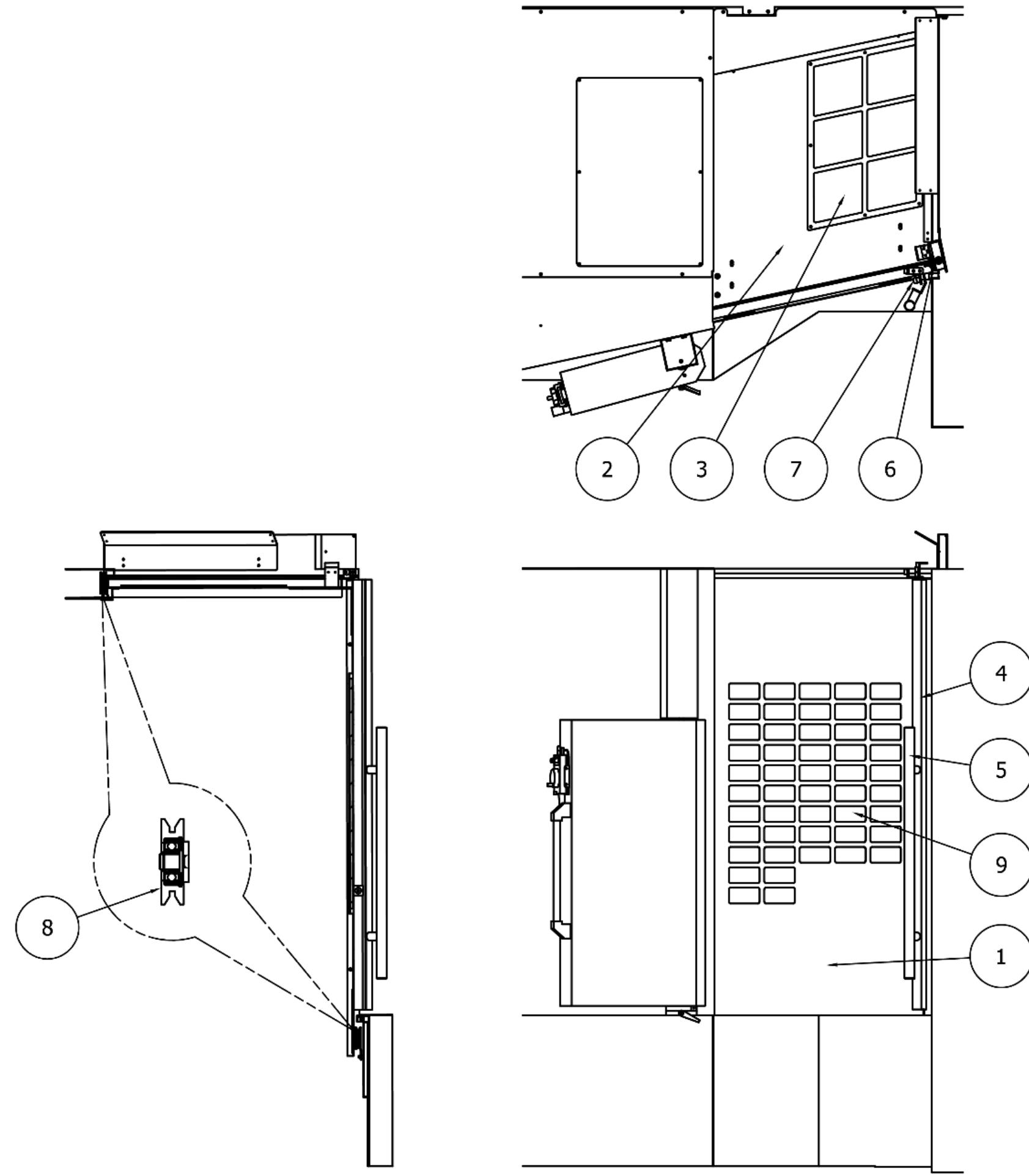
AH450028B0 6APC



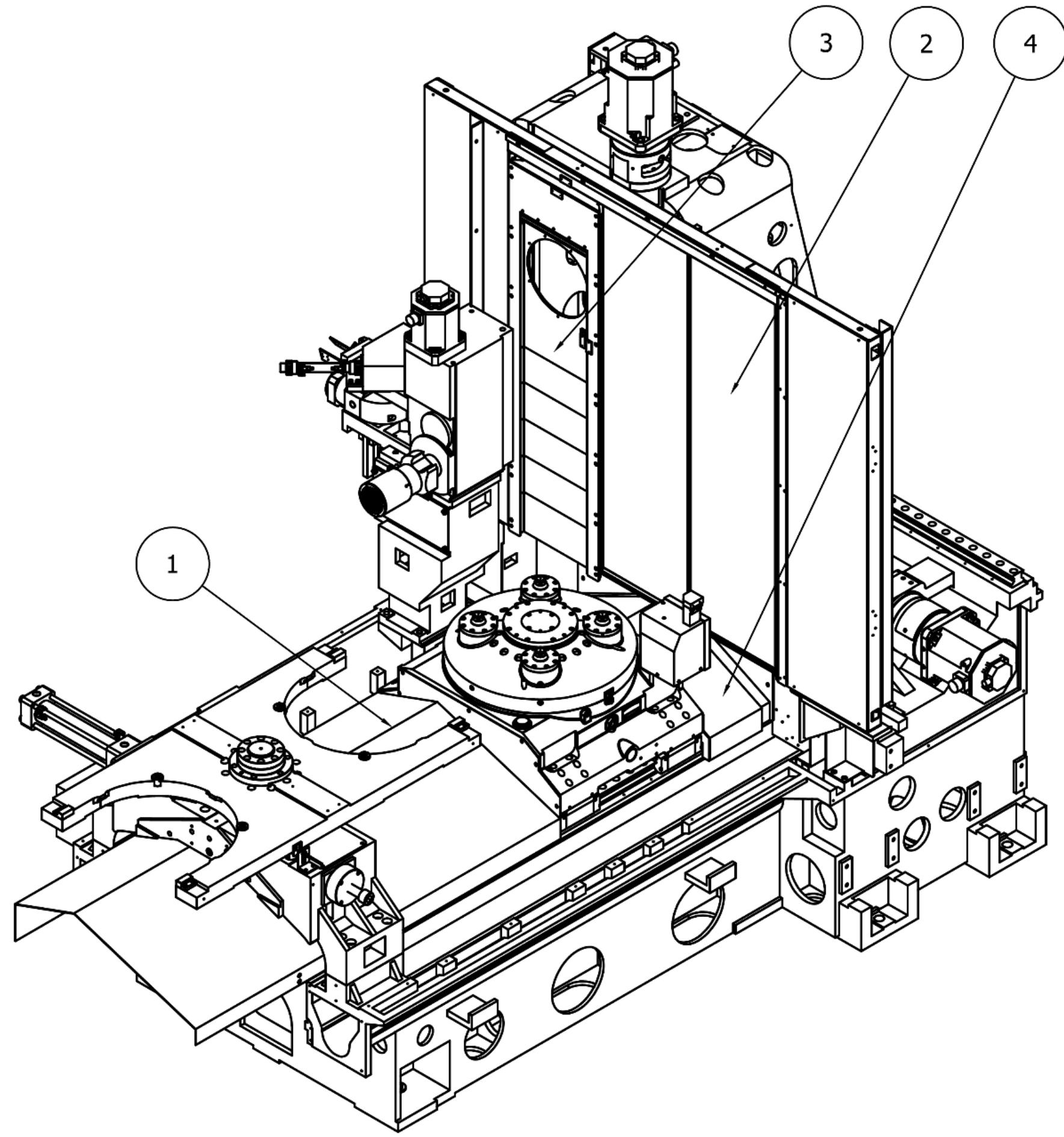
NJ00001A Spiral Conveyor



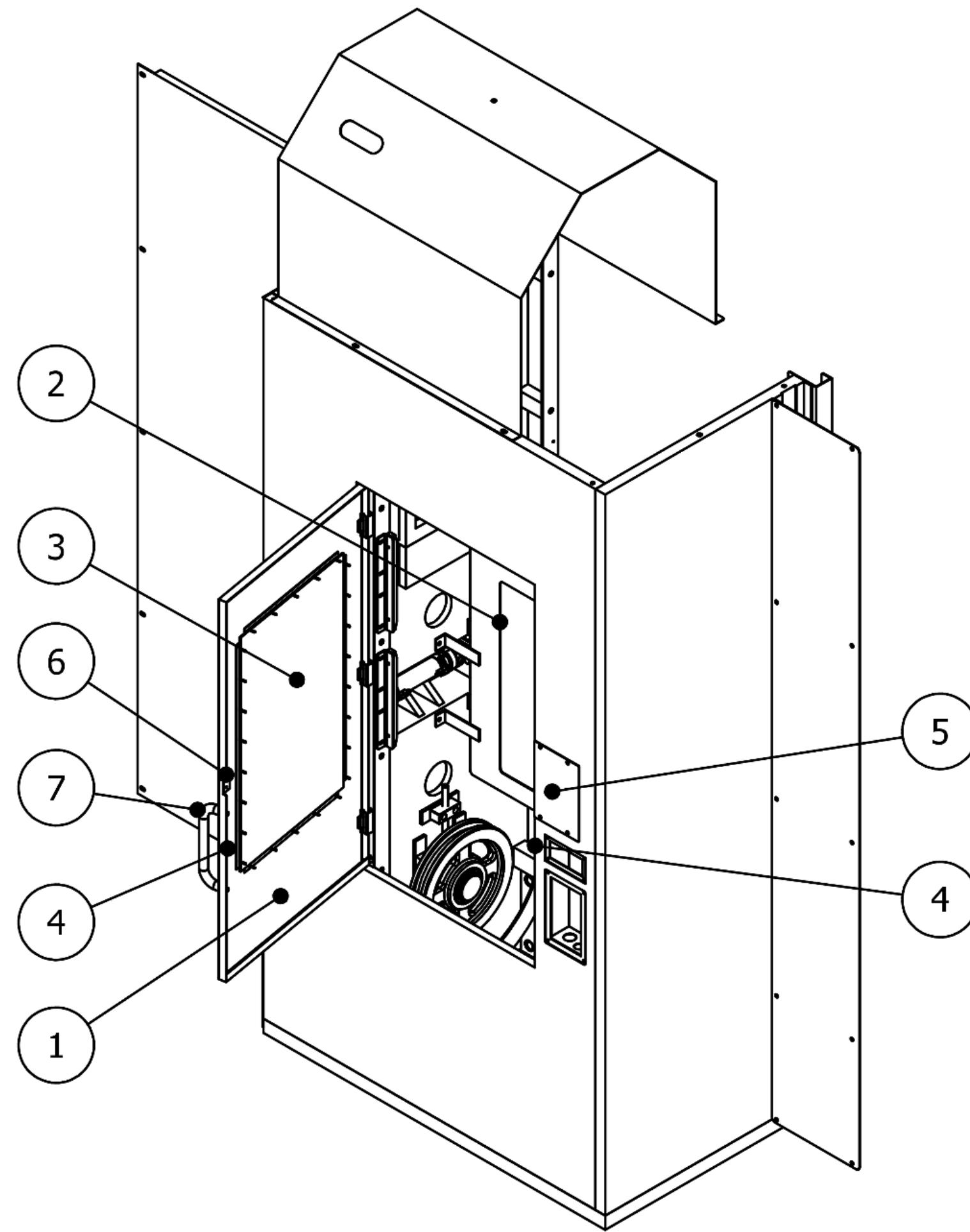
AH450051A0 Front Door



AH450052A0 Operator Door



AH450053A0 X/Y/Z Axis Cover



AH450055A0 ATC Magazine Cover
(60Tools)